

AT&T
optical
private line
solutions

AT&T optical private line solutions

Dedicated to Carrying

Tomorrow's Applications



AT&T Optical Private Line Solutions

"... demand is out there for IP and bandwidth, so we are on a 'build and fill' strategy."

– Mike Armstrong,
CEO, AT&T

How does your business grow?

With better information, of course.

Which means you need to connect LANs

to WANs for stronger communications

with wider audiences. Economically

converge voice and data traffic over

robust technologies such as asynchronous

transfer mode (ATM). Share heavy-duty

CAD/CAM applications that reduce

time-to-market. Extend mainframe

channels and make supercomputer file

transfers for mission-critical activities such

as data backup. Utilize full-motion video

for videoconferencing and visual imaging.

More than ever, businesses like yours are

looking toward emerging broadband

applications, with their extraordinary

flexibility to grow and enhance networks

for years to come. Broadband has the

speed and bandwidth to smoothly

perform all of the above – and more.

Where do you go for world-class

communications solutions that solve

real-life business issues? Where you've

always gone. AT&T.

AT&T SONET Private Line Services give

you the highest-speed, best-of-breed

broadband communications capabilities,

ready to deploy when and where you

need them.

AT&T Optical Solutions

SONET, or Synchronous Optical

Network, is a standards-based, fiber optics

transmission method that AT&T has

adopted and built into our highest-

capacity domestic digital service offering.

AT&T's adaptation provides a new level

of network intelligence that carries your

data, known as the "payload", as well as

control and monitoring information,

called "overhead", in one synchronous

data stream.

AT&T's optical solutions support the

fastest network speeds available today,

from 155 Mbps (OC3) to 9.953 Gbps

(OC192) – 10 billion data bits per

second. We're currently expanding our

optical infrastructure with 16,500 miles

of our new "next-generation" fiber in

conjunction with our new two-tier

www.att.com/ipservices

architecture – positioning our network to support OC768 services, four times faster than the OC192 of today's network.

This two-tier architecture is comprised of an ultra-capacity "express" overlay network with state-of-the-art SONET and optical networking technologies. It yields a 50% reduction in regeneration and multiplexing points, which in turn reduces points of failure and equipment costs.

In addition to high-speed transmission overall, AT&T utilizes Dense Wave Division Multiplexing (DWDM). This sophisticated technology lets us use different wavelengths of light to dramatically expand the bandwidth capacity of a single optical fiber – allowing each fiber to carry much more data, much more efficiently than ever before. In 2000, AT&T deployed DWDM systems with wavelengths of 64 to 80, and with 1,200 systems in place, AT&T offers the largest DWDM deployment in the world.

Plus, AT&T's optical solutions have extensive reach to your areas of network needs with more than 50,000 route miles, another 16,500 with the new next-generation fiber deployment, more than 115 physical rings (and still adding) and 240+ wavelengths ensure extensive coverage and higher reliability by limiting ring size.

Reliability Right Down to the Ring

AT&T has always known that reliability of service is just as important to you as high speed. AT&T's restoration features on the network enable us to route around a failure in milliseconds, so fast that it's virtually unnoticeable to you and your users.

In addition, AT&T's optical solutions interface at your site and the AT&T network over two pairs of optical fiber. One pair acts as the service circuit – the service path – and the other is available as a standby protection circuit – the protection path. These redundant connections allow switching between the service path and protection path in the event of a circuit failure.

As an option, you can even benefit from diverse routing, building in extra protection should a failure occur.

Adding to the assurance of reliability, AT&T monitors the AT&T Optical Network 24 hours a day. In addition, the AT&T SONET Maintenance Center is available on a 24x7 basis for service issues.

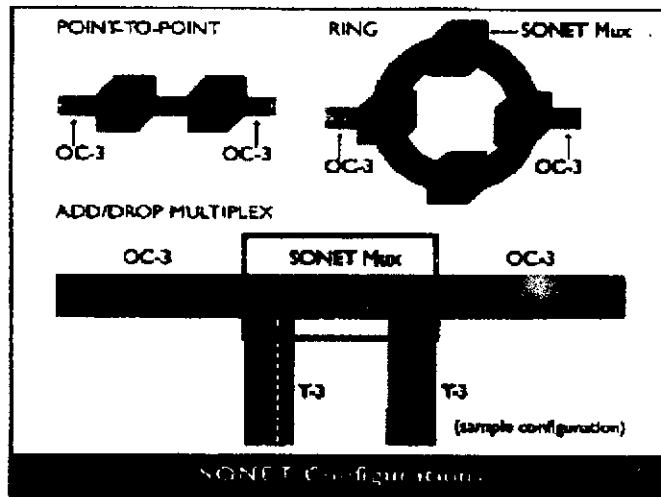
Service Options for Expanding Revenue

AT&T's optical solutions are available in two configurations – an Interoffice Channel (IOC) circuit for a point to point, dedicated connection between two AT&T Central Offices (COs), or a Local Channel (LC) circuit. Each configuration comes with multiple access options that cover virtually every need your company might experience.

For extra value, the Multiplexing Office Function, an optional component, adds even greater flexibility.

Currently available for SONET OC3 and OC12 services, this AT&T Multiplexing option allows for channelization and an economical means to separate and transmit lower-capacity DS1, DS3 and/or OC3 signals. Which means you can more easily and efficiently segment your communications without sacrificing quality or quantity.

AT&T Optical Private Line Solutions



"...demand is out there for IP and bandwidth, so we are on a 'build and fill' strategy."

— Mike Armstrong, CEO,
AT&T

Support from the Leader

AT&T's state-of-the-art architecture, superior network technology and robust infrastructure make us the industry leader in optical services – now and with a clear plan for an optical switched network as technologies evolve in the future. As you devote your resources to developing new business opportunities, you can rely on AT&T for world-class support.

With more fiber miles, more built-in redundancy features and a comprehensive Service Level Agreement, the AT&T Private Line Service Assurance Warranty,

we can carry your next generation communications where they need to go – reliably, efficiently and at unbelievable speeds.

*Availability of specific features and options may vary depending on location.

**For more information,
contact your AT&T Account
Representative or AT&T
Alliance Program Agent.**

**Call 1-800-288-3199
or visit our web site at
www.att.com/ipservices.**

List of Locations Satisfying Wholesale Trigger			
	Serving Wire Center	Address	City
1	ARLHILAH	1305 ALGONQUIN RD	ELK GROVE TOWNSHIP
2	BNSVILBV	1 PIERCE PL	ITASCA
3	BNSVILBV	2 PIERCE PL	ITASCA
4	BNSVILBV	711 N EDGEWOOD AVE	WOOD DALE
5	CHCGILCA	1 BANK ONE PLZ	CHICAGO
6	CHCGILCA	350 E CERMAK RD	CHICAGO
7	CHCGILCL	10 S CANAL ST	CHICAGO
8	CHCGILCL	10 S RIVERSIDE PLZ	CHICAGO
9	CHCGILCL	10 S WACKER DR	CHICAGO
10	CHCGILCL	111 N CANAL ST	CHICAGO
11	CHCGILCL	120 S RIVERSIDE PLZ	CHICAGO
12	CHCGILCL	125 S WACKER DR	CHICAGO
13	CHCGILCL	150 S WACKER DR	CHICAGO
14	CHCGILCL	165 N CANAL ST	CHICAGO
15	CHCGILCL	2 N RIVERSIDE PLZ	CHICAGO
16	CHCGILCL	200 S WACKER DR	CHICAGO
17	CHCGILCL	233 S WACKER DR	CHICAGO
18	CHCGILCL	30 S WACKER DR	CHICAGO
19	CHCGILCL	300 S RIVERSIDE PLZ	CHICAGO
20	CHCGILCL	525 W MONROE ST	CHICAGO
21	CHCGILCL	550 W JACKSON BLVD	CHICAGO
22	CHCGILCL	555 W ADAMS ST	CHICAGO
23	CHCGILCL	600 W MADISON ST	CHICAGO
24	CHCGILFR	1 N STATE ST	CHICAGO
25	CHCGILFR	10 S DEARBORN ST	CHICAGO
26	CHCGILFR	10 S LA SALLE ST	CHICAGO
27	CHCGILFR	100 S WACKER DR	CHICAGO
28	CHCGILFR	101 N WACKER DR	CHICAGO
29	CHCGILFR	135 S LA SALLE ST	CHICAGO
30	CHCGILFR	140 S DEARBORN ST	CHICAGO
31	CHCGILFR	150 N MICHIGAN AVE	CHICAGO
32	CHCGILFR	161 N CLARK ST	CHICAGO
33	CHCGILFR	181 W MADISON ST	CHICAGO
34	CHCGILFR	190 S LA SALLE ST	CHICAGO
35	CHCGILFR	20 N WACKER DR	CHICAGO
36	CHCGILFR	200 N LA SALLE ST	CHICAGO
37	CHCGILFR	200 W ADAMS ST	CHICAGO
38	CHCGILFR	200 W MADISON ST	CHICAGO
39	CHCGILFR	208 S LA SALLE ST	CHICAGO
40	CHCGILFR	221 N LA SALLE ST	CHICAGO
41	CHCGILFR	222 W ADAMS ST	CHICAGO
42	CHCGILFR	225 W WACKER DR	CHICAGO
43	CHCGILFR	225 W WASHINGTON ST	CHICAGO
44	CHCGILFR	227 W MONROE ST	CHICAGO
45	CHCGILFR	230 W MONROE ST	CHICAGO

46	CHCGILFR	311 W WASHINGTON ST	CHICAGO
47	CHCGILFR	33 N LA SALLE ST	CHICAGO
48	CHCGILFR	333 N MICHIGAN AVE	CHICAGO
49	CHCGILFR	333 W WACKER	CHICAGO
50	CHCGILFR	65 E WACKER PL	CHICAGO
51	CHCGILFR	70 W MADISON ST	CHICAGO
52	CHCGILFR	77 W WACKER DR	CHICAGO
53	CHCGILID	330 N WABASH AVE	CHICAGO
54	CHCGILID	350 N ORLEANS ST	CHICAGO
55	CHCGILID	444 N MICHIGAN AVE	CHICAGO
56	CHCGILID	455 CITYFRONT PLAZA DR	CHICAGO
57	CHCGILID	515 N STATE ST	CHICAGO
58	CHCGILID	710 N LAKE SHORE DR	CHICAGO
59	CHCGILLA	3111 S WESTERN AVE	CHICAGO
60	CHCGILLA	4200 W 40TH ST	CHICAGO
61	CHCGILLR	130 E RANDOLPH ST	CHICAGO
62	CHCGILLR	155 N MICHIGAN AVE	CHICAGO
63	CHCGILLR	180 N STETSON AVE	CHICAGO
64	CHCGILLR	200 E RANDOLPH DR	CHICAGO
65	CHCGILLR	205 N MICHIGAN AVE	CHICAGO
66	CHCGILLR	225 N MICHIGAN AVE	CHICAGO
67	CHCGILLR	303 E WACKER DR	CHICAGO
68	CHCGILMH	11835 S O AVE	CHICAGO
69	CHCGILSU	600 W CHICAGO AVE	CHICAGO
70	CHCGILSU	630 N MCCLURG CT	CHICAGO
71	CHCGILWB	111 W JACKSON BLVD	CHICAGO
72	CHCGILWB	141 W JACKSON BLVD	CHICAGO
73	CHCGILWB	175 W JACKSON BLVD	CHICAGO
74	CHCGILWB	216 W JACKSON BLVD	CHICAGO
75	CHCGILWB	300 S WACKER DR	CHICAGO
76	CHCGILWB	311 S WACKER DR	CHICAGO
77	CHCGILWB	400 S LA SALLE ST	CHICAGO
78	CHCGILWB	401 S LA SALLE ST	CHICAGO
79	CHCGILWB	427 S LA SALLE ST	CHICAGO
80	CHCGILWB	440 S LA SALLE ST	CHICAGO
81	CHCGILWB	520 S FEDERAL ST	CHICAGO
82	CHCGILWB	547 W JACKSON BLVD	CHICAGO
83	CHCGILWB	555 W JACKSON BLVD	CHICAGO
84	CHCGILWB	600 S FEDERAL ST	CHICAGO
85	CHCGILWB	601 W POLK ST	CHICAGO
86	CHCGILWB	700 S FEDERAL ST	CHICAGO
87	CHCGILWB	717 S WELLS ST	CHICAGO
88	CHCGILWB	725 S WELLS ST	CHICAGO
89	CHCGILWB	85 W CONGRESS PKWY	CHICAGO
90	CHMPILCP	304 S RANDOLPH (217) ST	CHAMPAIGN
91	COVLILCQ	423 W CLAY ST	COLLINSVILLE
92	DWGVILDG	501 63RD ST	DOWNERS GROVE
93	DWGVILDG	801 WARRENVILLE RD	LISLE
94	EGVGILEG	1701 GOLF RD	ROLLING MEADOWS
95	EGVGILEG	2425 BUSSE RD	ELK GROVE VILLAGE
96	EGVGILEG	3820 GOLF RD	ROLLING MEADOWS

97	EMHRILET	1808 SWIFT DR	OAK BROOK
98	HFESILWL	1325 JONES RD	HOFFMAN ESTATES
99	LBRDILLM	20 N MAIN ST	LOMBARD
100	LVPKILRN	9934 N ALPINE RD	MACHESNEY PARK
101	NBRKILNB	2305 SANDERS RD	NORTHBROOK
102	NBRKILNB	3200 ARNOLD LN	NORTHBROOK
103	NBRKILNB	450 LAKE COOK RD	DEERFIELD
104	OKBRILOA	1000 COMMERCE DR	OAK BROOK
105	OKBRILOA	1111 W 22ND ST	OAK BROOK
106	OKBRILOA	18 W048 22ND ST	OAKBROOK TERRACE
107	OKBRILOA	2809 BUTTERFIELD RD	OAK BROOK
108	OKBRILOA	800 JORIE BLVD	OAK BROOK
109	OKBRILOA	810 JORIE BLVD	OAK BROOK
110	PRRGILXL	36 S FAIRVIEW AVE	PARK RIDGE
111	PRRGILXL	6133 N RIVER RD	DES PLAINES
112	PRRGILXL	8550 W BRYN MAWR AVE	CHICAGO
113	PRRGILXL	8755 W HIGGINS RD	CHICAGO
114	RCFRILRT	216 N MAIN ST	ROCKFORD
115	SCBGILCO	1400 AMERICAN LN	SCHAUMBURG
116	SCBGILCO	231 N MARTINGALE RD	SCHAUMBURG
117	SCBGILCO	425 N MARTINGALE RD	SCHAUMBURG
118	SCBGILRS	1299 E ALGONQUIN RD	SCHAUMBURG
119	SPFDILES	1 W OLD STATE CAPITOL PLZ	SPRINGFIELD
120	SPFDILES	620 S 5TH ST	SPRINGFIELD
121	WLNGILWG	15975 W ST 22 HWY	LINCOLNSHIRE
122	WLNGILWG	540 ALLENDALE DR	WHEELING

Alternate Fiber Providers & Lit-Buildings Wire Center Chicago, Canal-CHCGILCL

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Chicago Canal Data Sets

Fiber Lit Buildings
1 Fiber Provider


Fiber Lit Buildings
2 or More
Fiber Providers

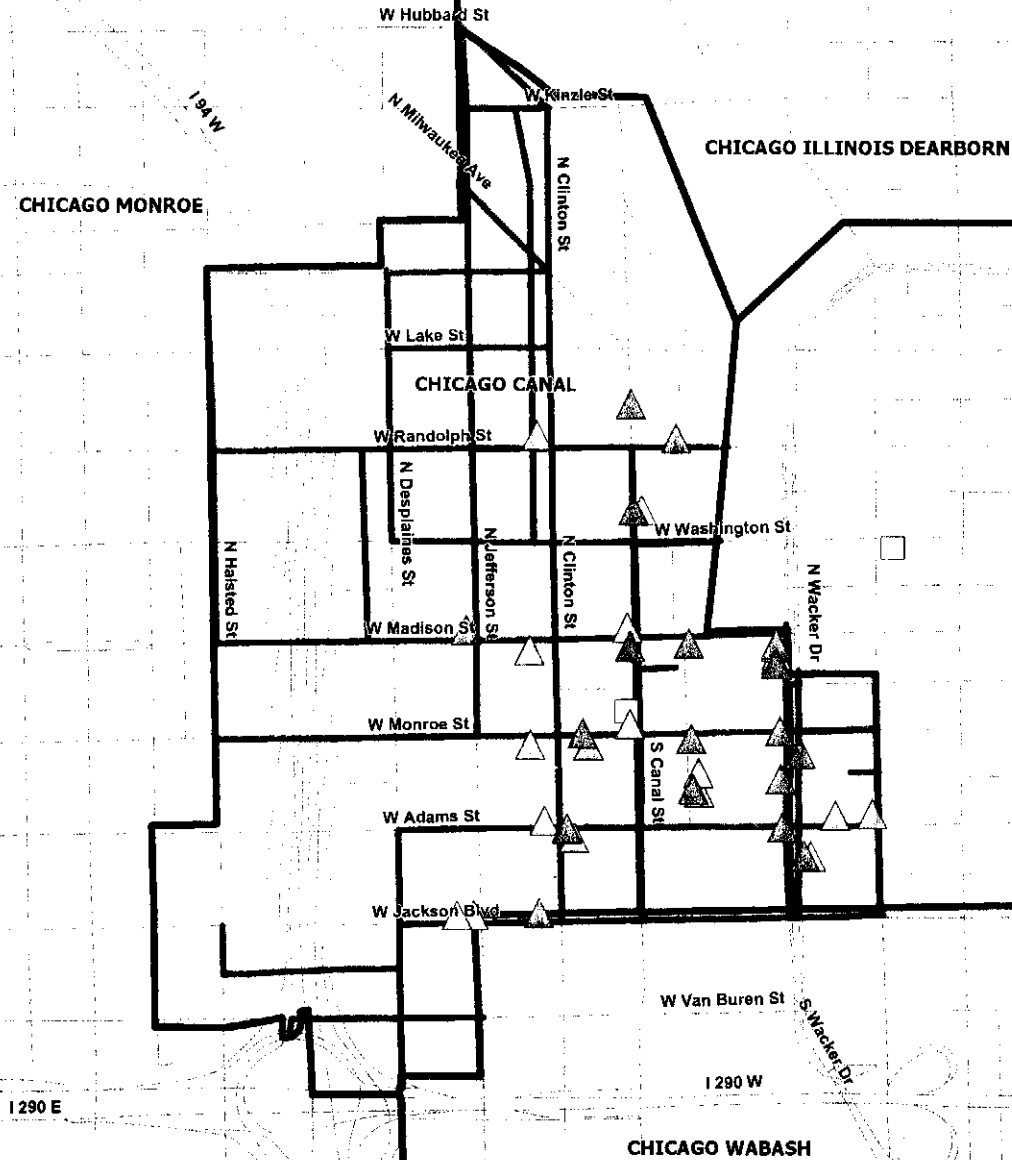
All Alternate Provider
Fiber Routes

SBC Central Offices

SBC Wire Centers

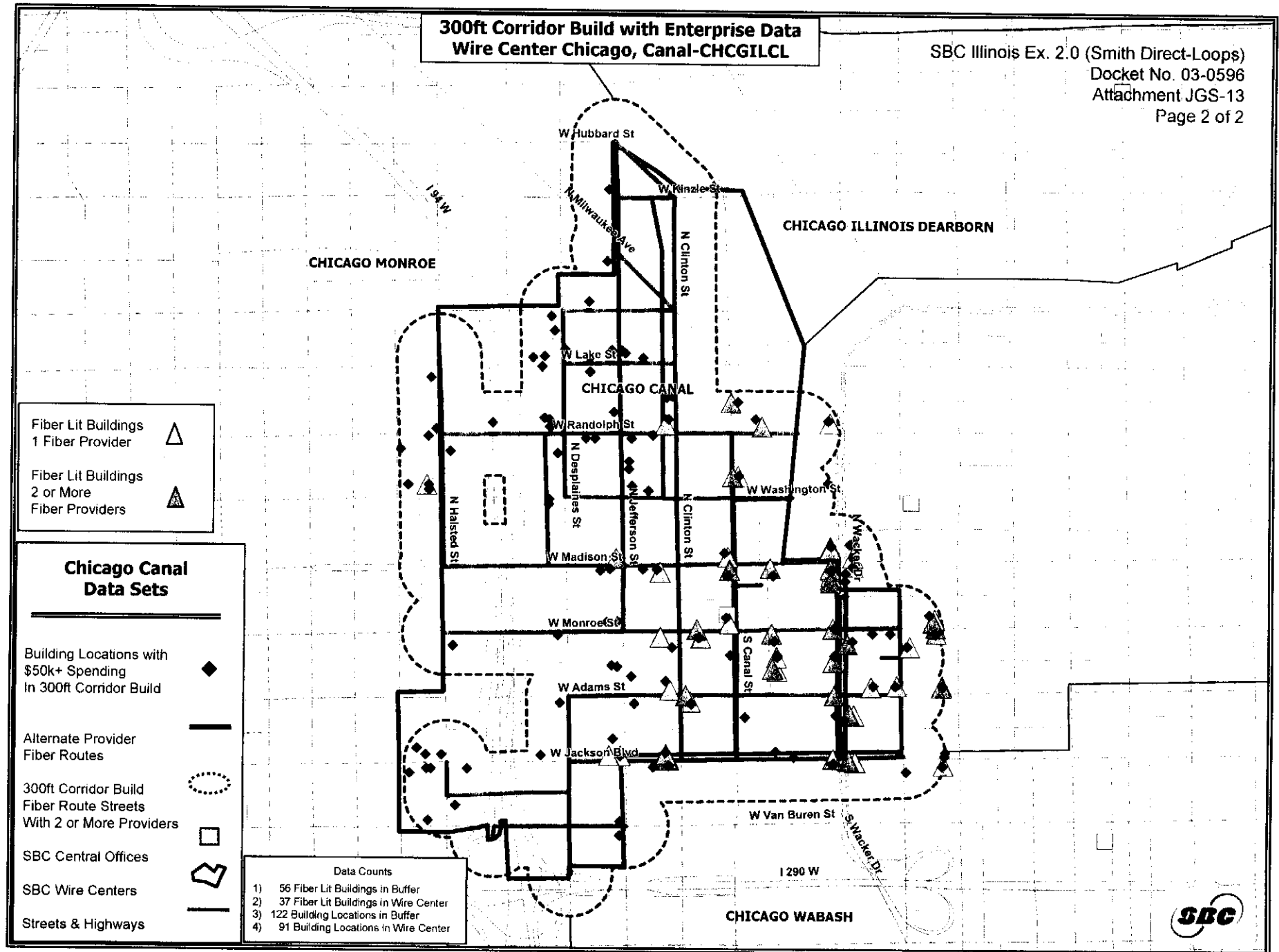
Streets & Highways





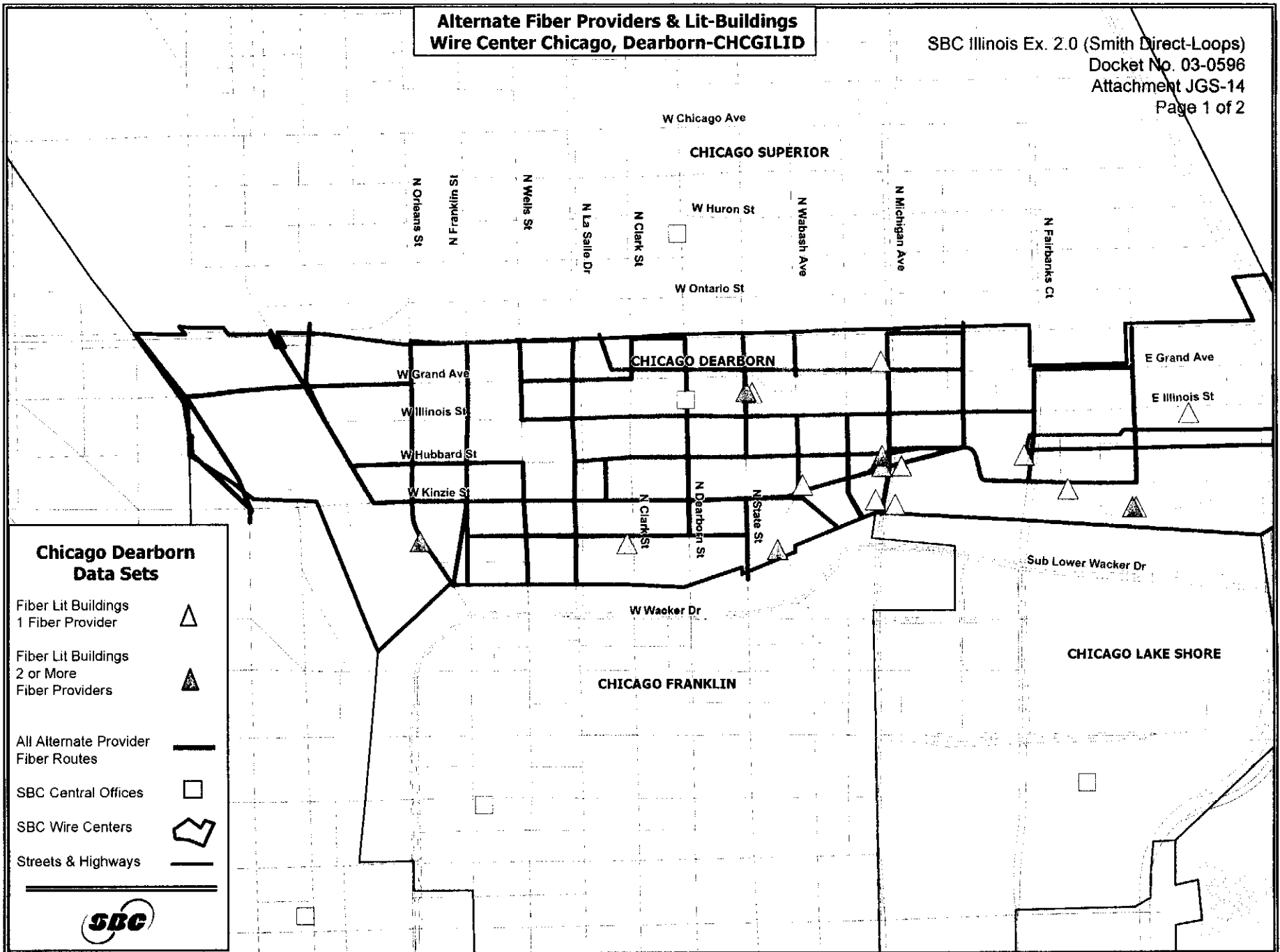
**300ft Corridor Build with Enterprise Data
Wire Center Chicago, Canal-CHCGILCL**

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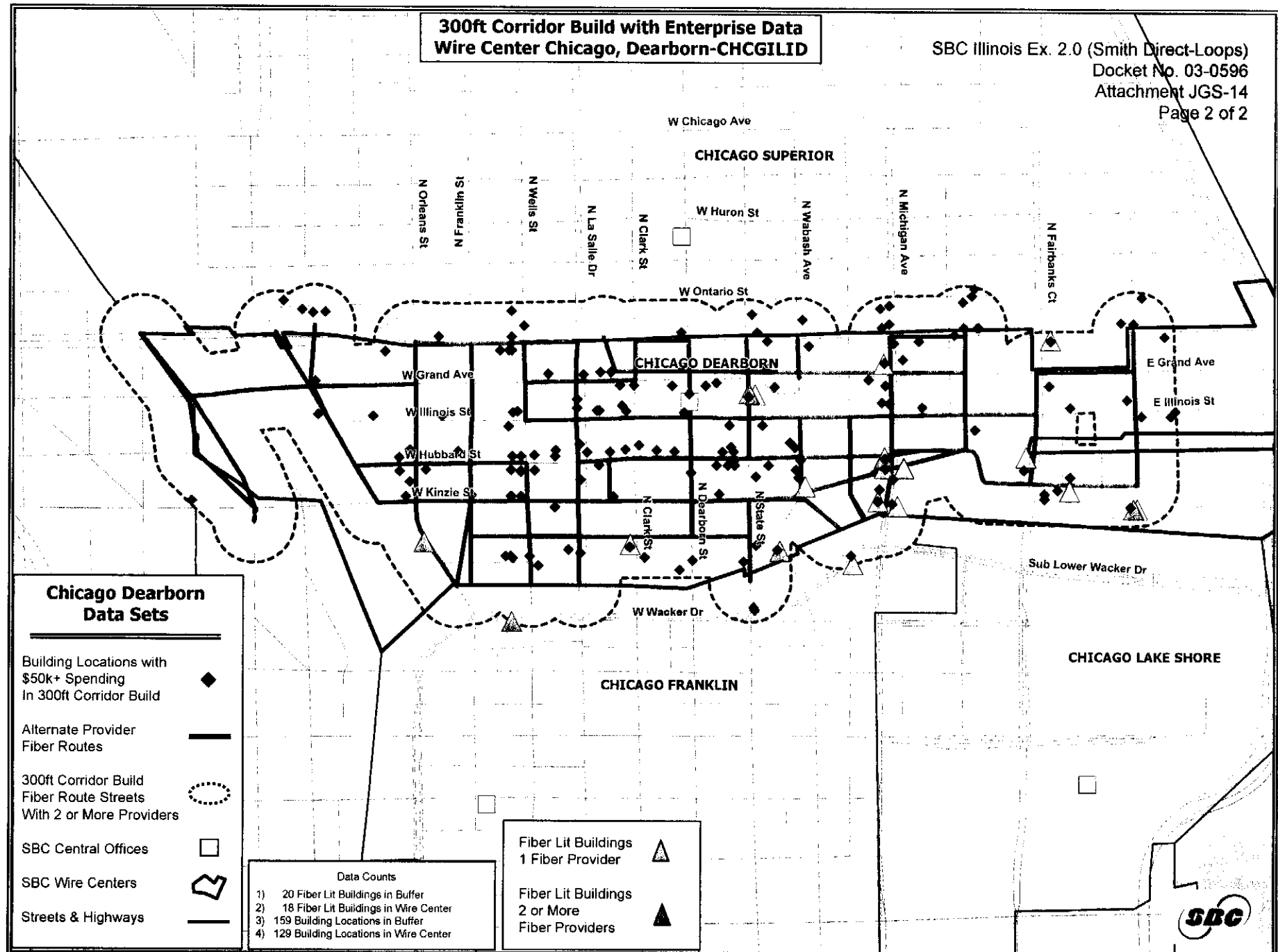
**Alternate Fiber Providers & Lit-Buildings
Wire Center Chicago, Dearborn-CHCGILID**

SBC Illinois Ex. 2.0 (Smith Direct-Loops)
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**300ft Corridor Build with Enterprise Data
Wire Center Chicago, Dearborn-CHCGILID**

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**Alternate Fiber Providers & Lit-Buildings
Wire Center Chicago, Franklin-CHCGILFR**

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CHICAGO DEARBORN







CHICAGO CANAL

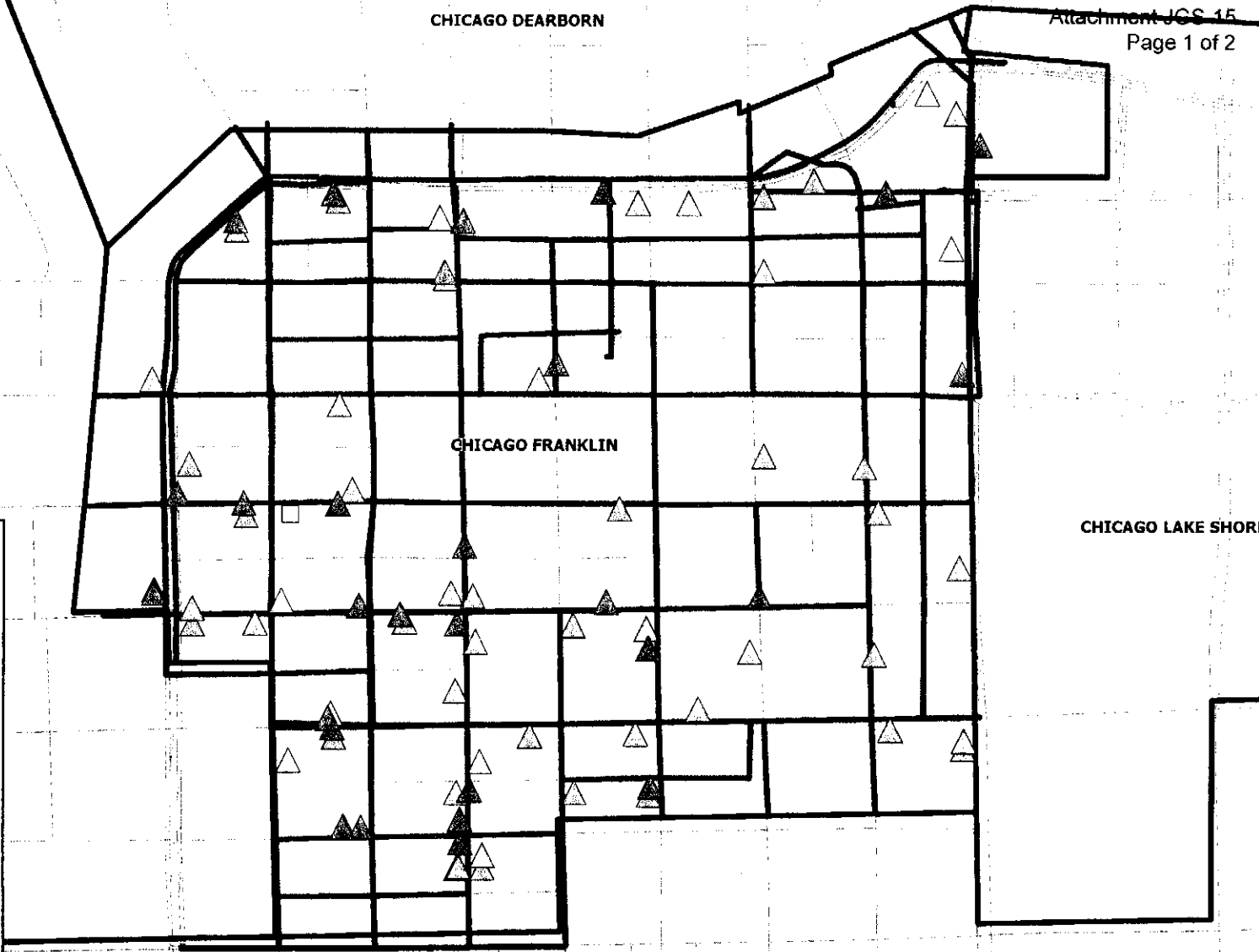
CHICAGO FRANKLIN

CHICAGO LAKE SHORE

CHICAGO WABASH

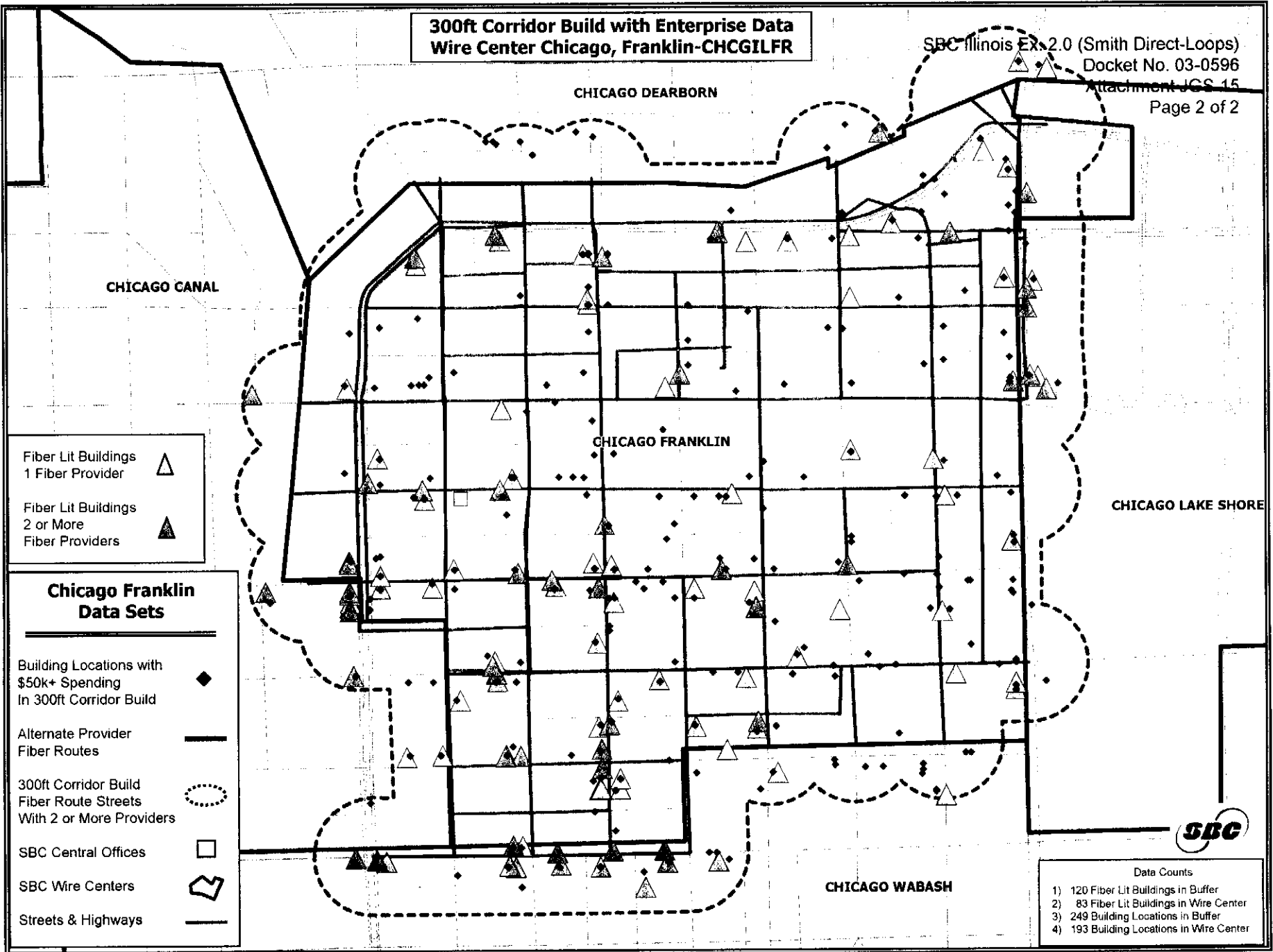
**Chicago Franklin
Data Sets**

- Fiber Lit Buildings
1 Fiber Provider 
- Fiber Lit Buildings
2 or More
Fiber Providers 
- All Alternate Provider
Fiber Routes 
- SBC Central Offices 
- SBC Wire Centers 
- Streets & Highways 



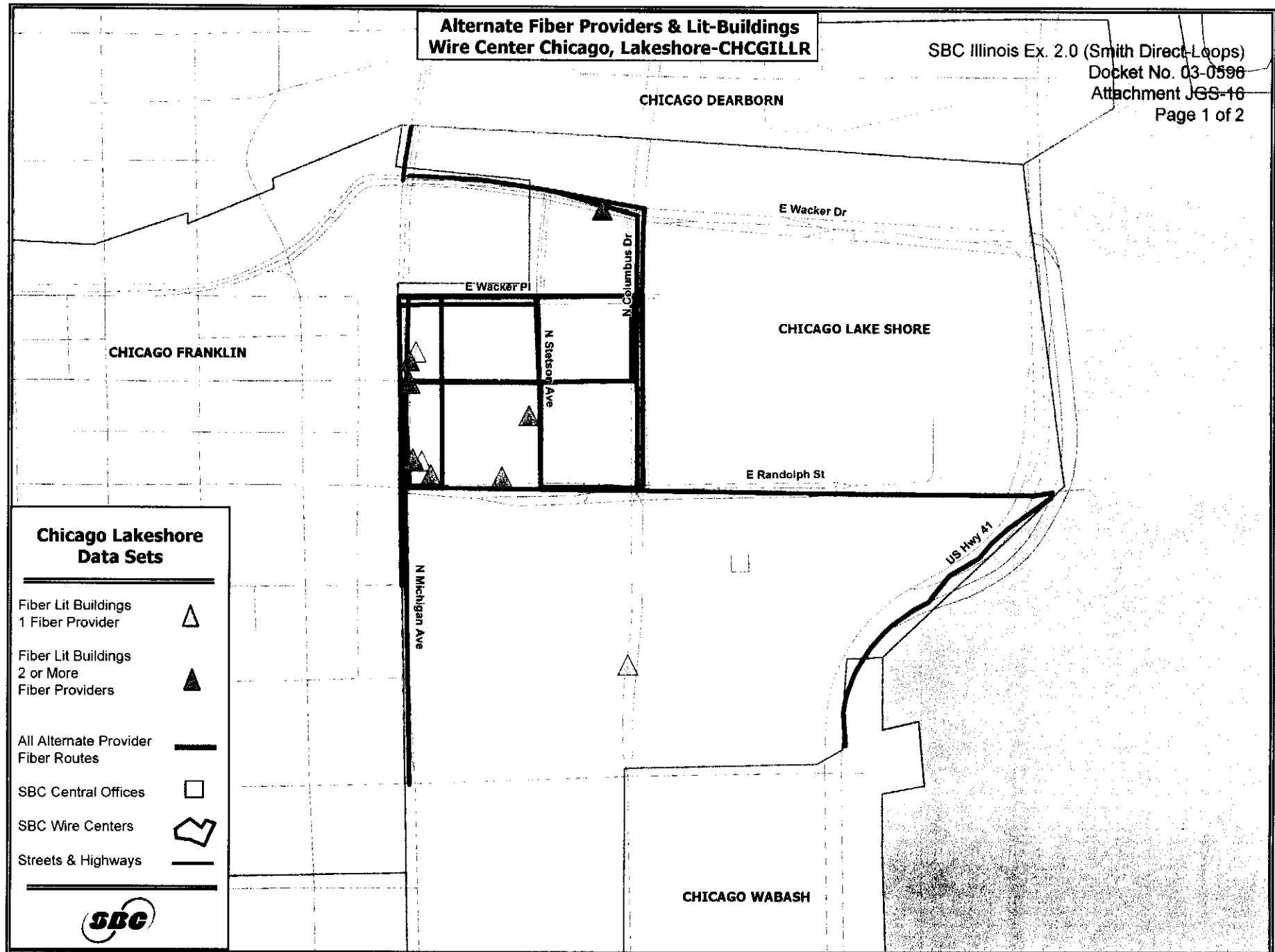
**300ft Corridor Build with Enterprise Data
Wire Center Chicago, Franklin-CHCGILFR**

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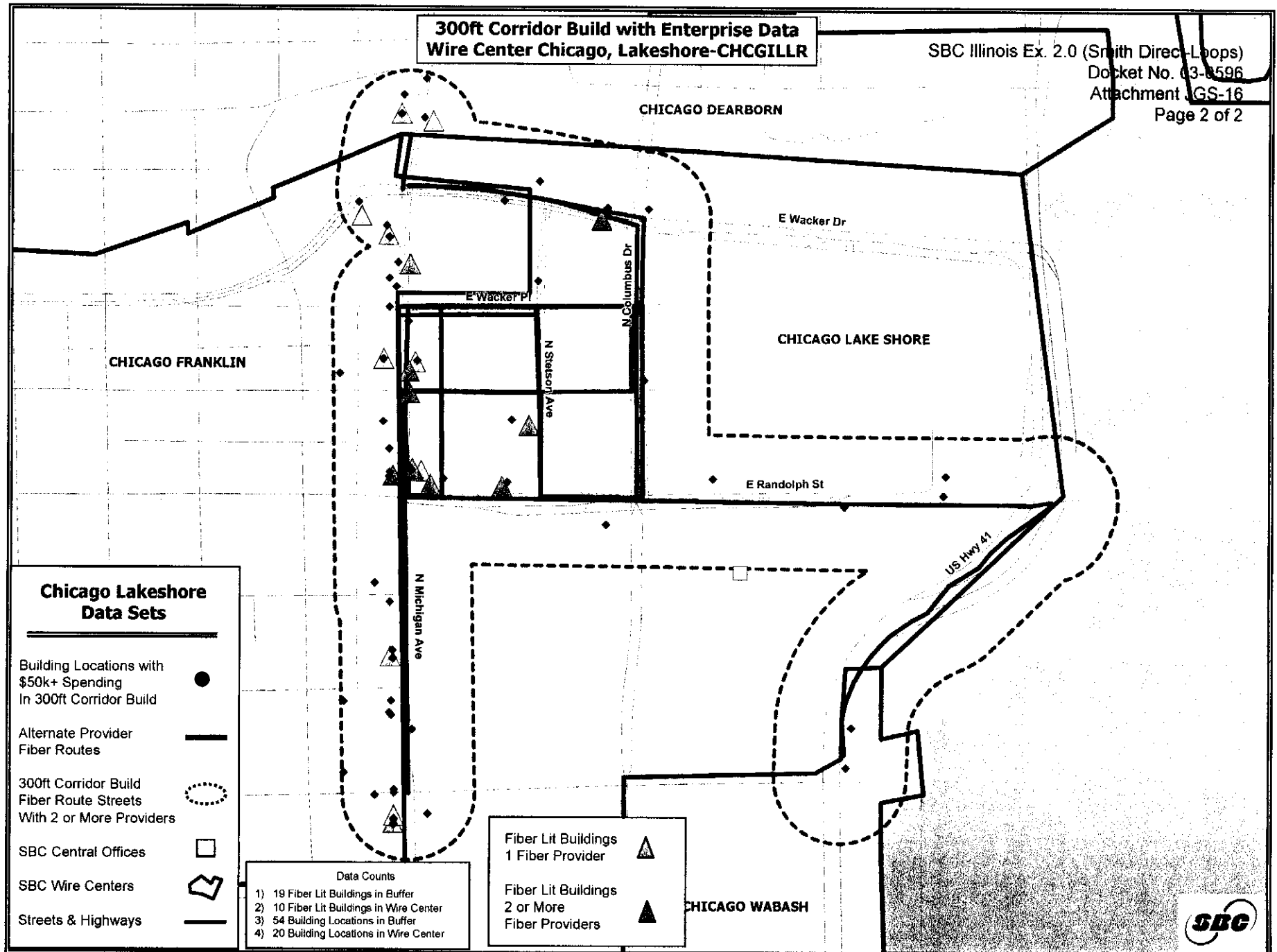
**Alternate Fiber Providers & Lit-Buildings
Wire Center Chicago, Lakeshore-CHCGILLR**

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**300ft Corridor Build with Enterprise Data
Wire Center Chicago, Lakeshore-CHCGILLR**

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**Alternate Fiber Providers & Lit-Buildings
Wire Center Chicago, Wabash-CHCGILWB**

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CHICAGO MONROE

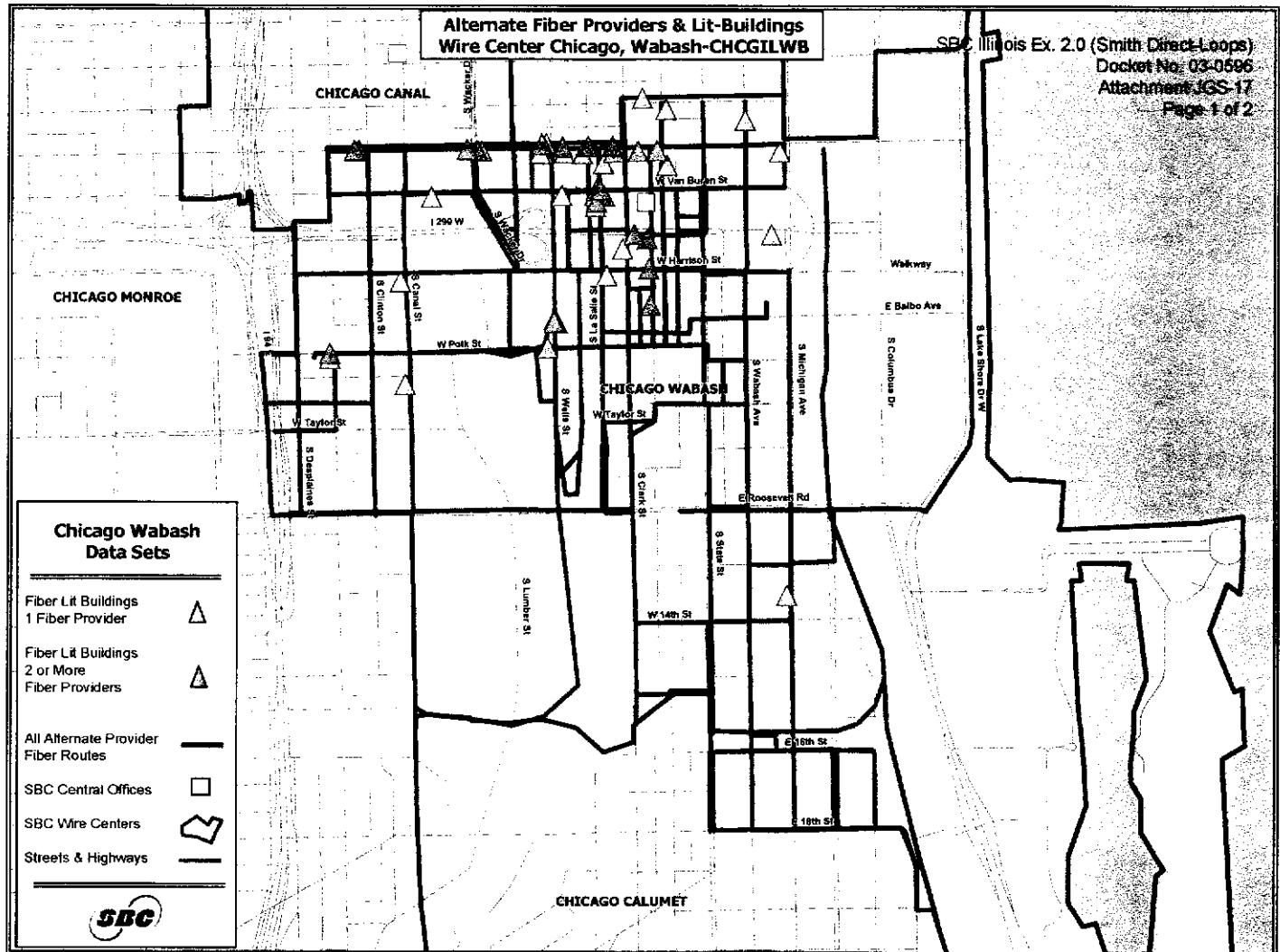
CHICAGO CANAL

CHICAGO WABASH

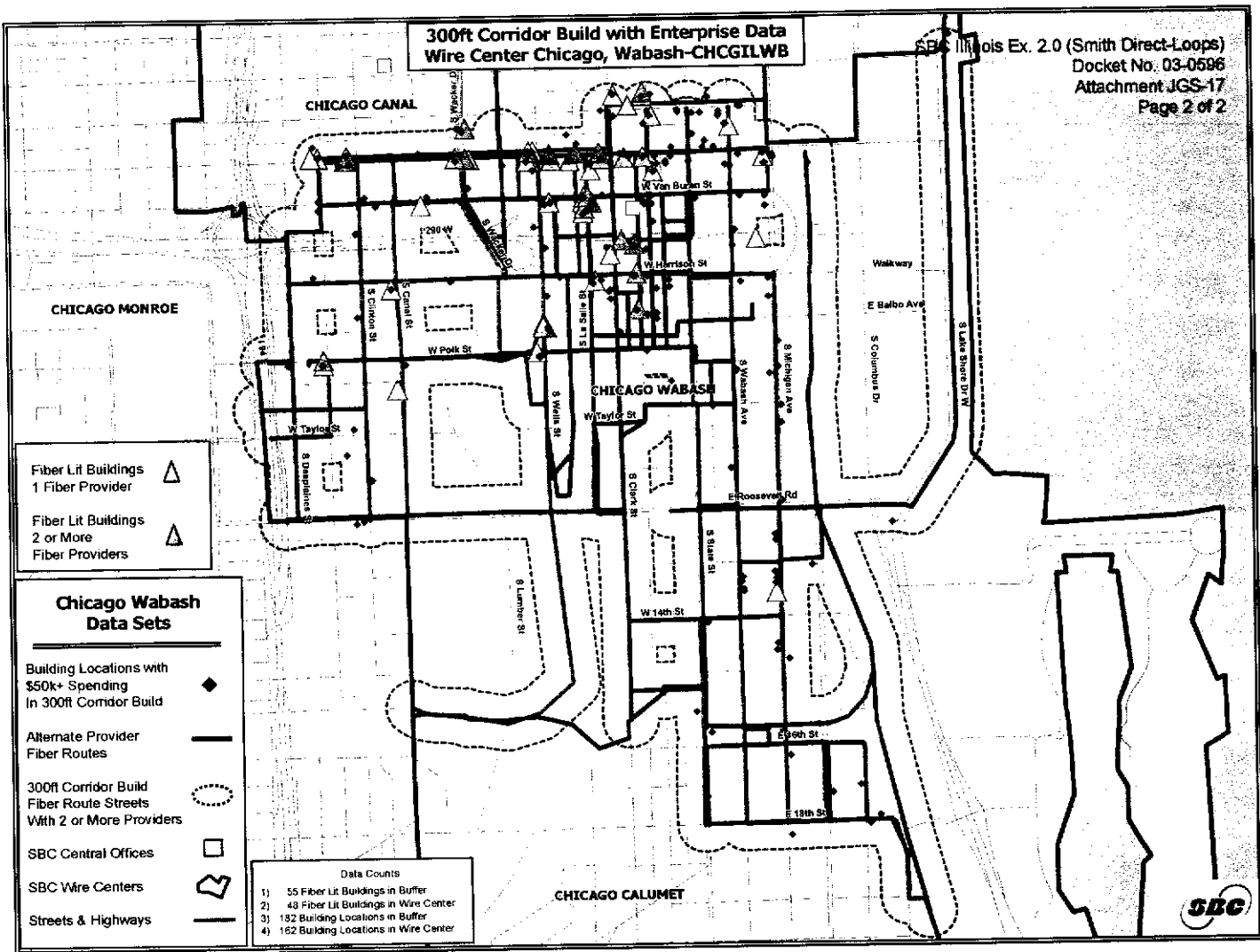
CHICAGO CALUMET

**Chicago Wabash
Data Sets**

- Fiber Lit Buildings
1 Fiber Provider 
- Fiber Lit Buildings
2 or More
Fiber Providers 
- All Alternate Provider
Fiber Routes 
- SBC Central Offices 
- SBC Wire Centers 
- Streets & Highways 



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Chicago Oakbrook Data Sets

Fiber Lit Buildings
1 Fiber Provider



Fiber Lit Buildings
2 or More
Fiber Providers



All Alternate Provider
Fiber Routes



SBC Central Offices



SBC Wire Centers

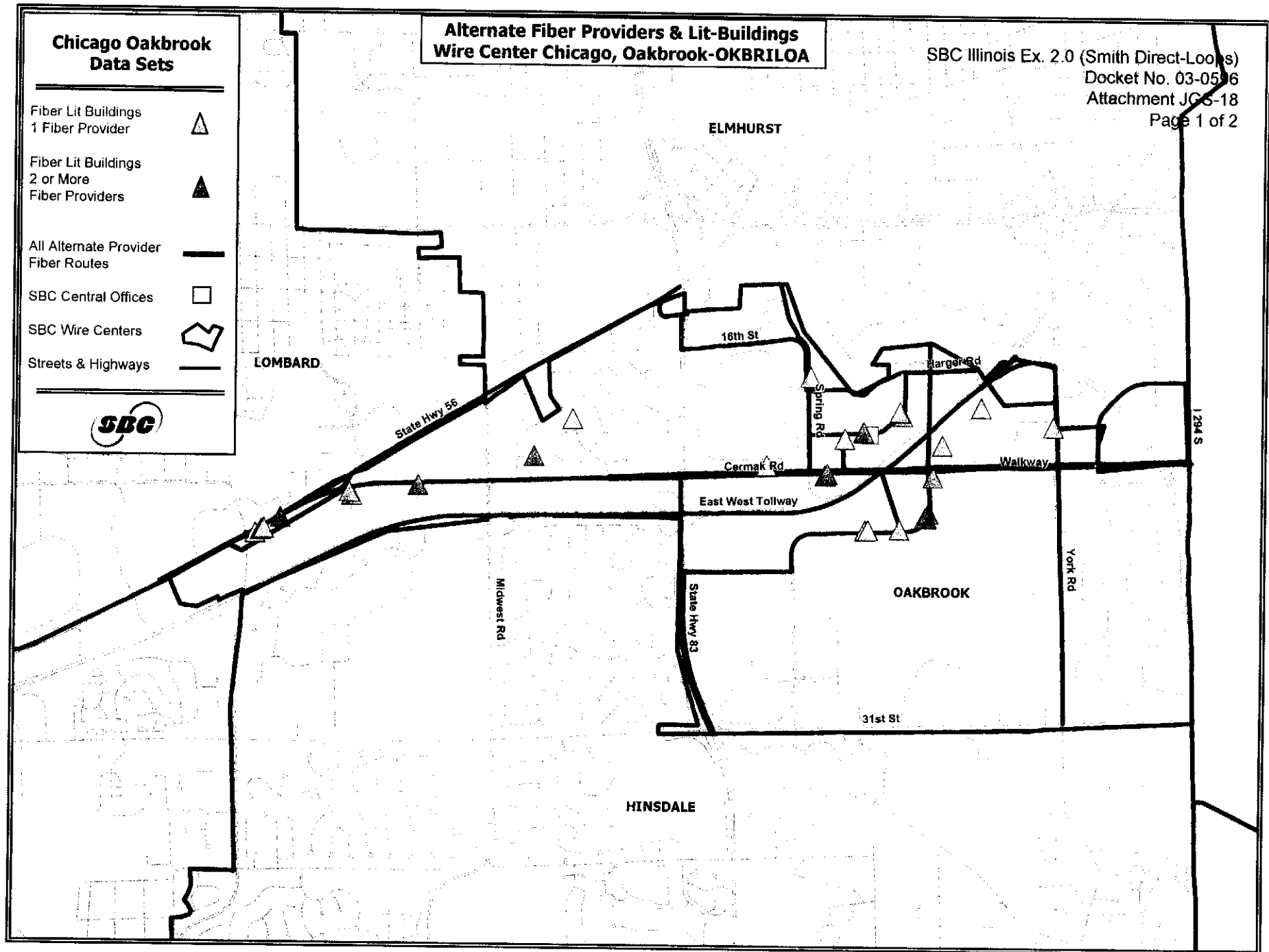


Streets & Highways



Alternate Fiber Providers & Lit-Buildings Wire Center Chicago, Oakbrook-OKBRILOA

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Chicago Oakbrook Data Sets

Building Locations with
\$50k+ Spending
In 300ft Corridor Build



Alternate Provider
Fiber Routes



300ft Corridor Build
Fiber Route Streets
With 2 or More Providers



SBC Central Offices



SBC Wire Centers

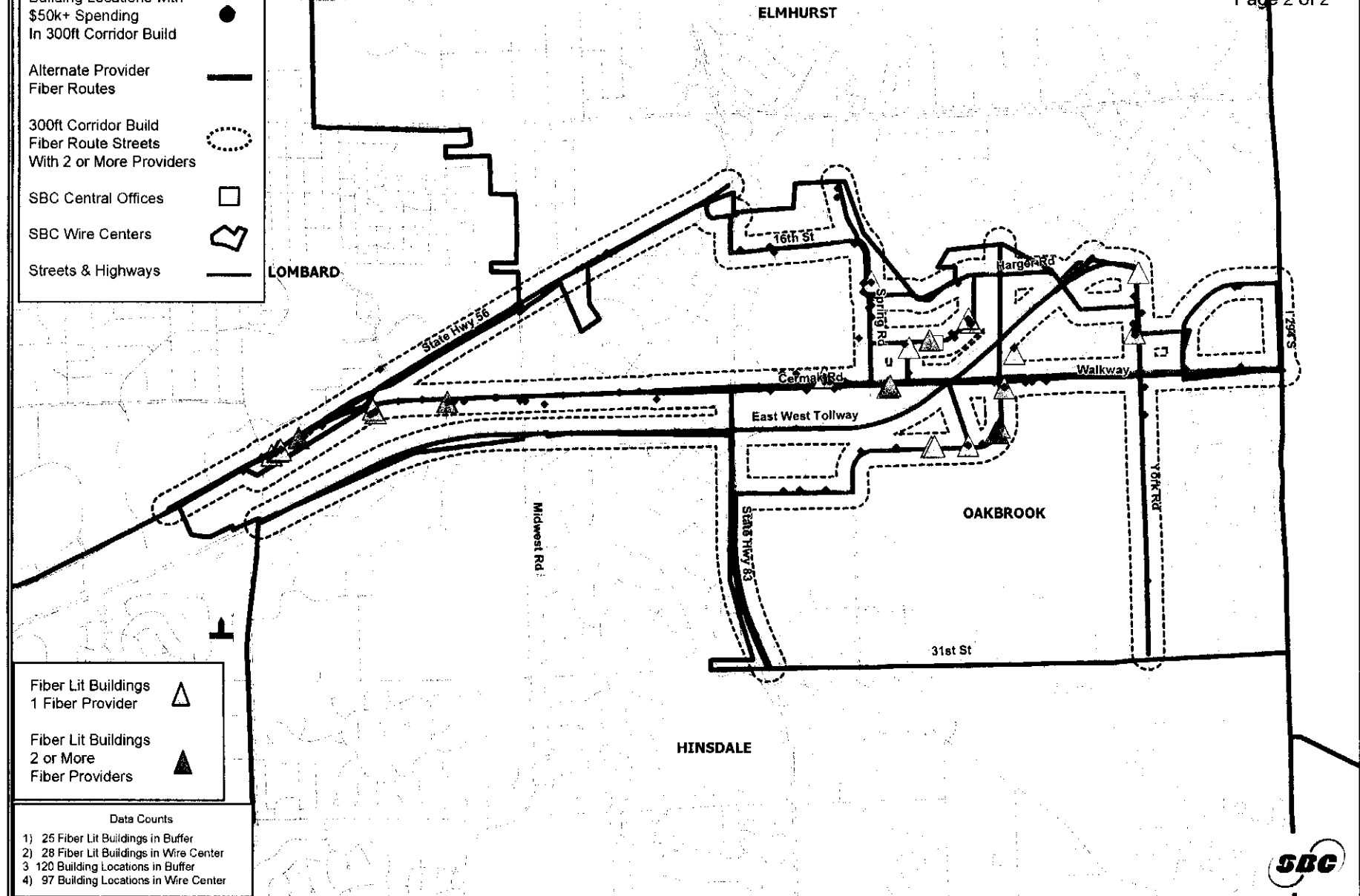


Streets & Highways



300ft Corridor Build with Enterprise Data Wire Center Chicago, Oakbrook-OKBRIOA

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SBC Illinois Ex. 2.0 (Smith Direct-Loops)
ICC Docket No. 03-0596

Attachment JGS-19

PUBLIC

List of Locations Satisfying Potential Deployment Analysis <i>(locations with known competing carriers identified)</i>				
	Serving Wire Center	Address	Competing Carrier	Competing Carrier Identified By
1	CHCGILAL	151 N MICHIGAN AVE	****	Discovery
2	CHCGILCA	1530 S STATE ST		
3	CHCGILCA	1718 S STATE ST		
4	CHCGILCA	1801 S PRAIRIE AVE		
5	CHCGILCA	1823 S MICHIGAN AVE		
6	CHCGILCL	10 S CANAL ST		
7	CHCGILCL	10 S RIVERSIDE PLZ		
8	CHCGILCL	10 S WACKER DR	****	Discovery
9	CHCGILCL	100 S WACKER DR		
10	CHCGILCL	108 S DESPLAINES ST		
11	CHCGILCL	111 N CANAL ST	****	Discovery
12	CHCGILCL	111 S HALSTED ST		
13	CHCGILCL	117 N JEFFERSON ST		
14	CHCGILCL	118 N CLINTON ST		
15	CHCGILCL	118 S CLINTON ST		
16	CHCGILCL	120 S RIVERSIDE PLZ		
17	CHCGILCL	123 N JEFFERSON ST		
18	CHCGILCL	125 N HALSTED ST		
19	CHCGILCL	125 S WACKER DR		
20	CHCGILCL	126 N DESPLAINES ST		
21	CHCGILCL	130 S CANAL ST		
22	CHCGILCL	130 S JEFFERSON ST		
23	CHCGILCL	150 N CLINTON ST	****	Discovery
24	CHCGILCL	150 S WACKER DR		
25	CHCGILCL	156 N JEFFERSON ST		
26	CHCGILCL	165 N CANAL ST		
27	CHCGILCL	168 N CLINTON ST		
28	CHCGILCL	20 S WACKER DR	****	Discovery
29	CHCGILCL	200 S WACKER DR		
30	CHCGILCL	208 S JEFFERSON ST		
31	CHCGILCL	210 S DESPLAINES ST		
32	CHCGILCL	212 S RIVERSIDE PLZ		
33	CHCGILCL	215 N DESPLAINES ST		
34	CHCGILCL	216 N JEFFERSON ST		
35	CHCGILCL	216 S JEFFERSON ST		
36	CHCGILCL	217 N JEFFERSON ST		
37	CHCGILCL	218 N JEFFERSON ST		
38	CHCGILCL	222 S RIVERSIDE PLZ	****	GeoResults
39	CHCGILCL	224 N DESPLAINES ST		
40	CHCGILCL	225 S CANAL ST		
41	CHCGILCL	231 S JEFFERSON ST		
42	CHCGILCL	250 S WACKER DR		
43	CHCGILCL	277 W MONROE ST		
44	CHCGILCL	30 S WACKER DR	****	Discovery
45	CHCGILCL	300 S RIVERSIDE PLZ	****	GeoResults
46	CHCGILCL	300 W ADAMS ST	****	Discovery
47	CHCGILCL	309 S GREEN ST		
48	CHCGILCL	311 W MONROE ST		
49	CHCGILCL	318 W ADAMS ST	****	Discovery
50	CHCGILCL	328 S JEFFERSON ST		
51	CHCGILCL	333 S HALSTED ST		
52	CHCGILCL	400 S JEFFERSON ST		
53	CHCGILCL	440 W RANDOLPH ST		
54	CHCGILCL	444 W JACKSON BLVD		
55	CHCGILCL	500 W MADISON ST	****	Discovery
56	CHCGILCL	500 W MONROE ST	****	Discovery
57	CHCGILCL	525 W MONROE ST	****	Discovery
58	CHCGILCL	549 W RANDOLPH ST		
59	CHCGILCL	550 W JACKSON BLVD		
60	CHCGILCL	550 W WASHINGTON BLVD		
61	CHCGILCL	555 W ADAMS ST	****	GeoResults
62	CHCGILCL	560 W LAKE ST		
63	CHCGILCL	560 W WASHINGTON BLVD		
64	CHCGILCL	565 W RANDOLPH ST		
65	CHCGILCL	566 W LAKE ST		
66	CHCGILCL	575 W MADISON ST		

67	CHCGILCL	600 W FULTON ST		
68	CHCGILCL	600 W MADISON ST		
69	CHCGILCL	600 W VAN BUREN ST		
70	CHCGILCL	601 W RANDOLPH ST		
71	CHCGILCL	605 W MADISON ST		
72	CHCGILCL	611 W ADAMS ST		
73	CHCGILCL	614 W MONROE ST		
74	CHCGILCL	615 W RANDOLPH ST		
75	CHCGILCL	625 W MADISON ST		
76	CHCGILCL	641 W LAKE ST		
77	CHCGILCL	647 W FULTON ST		
78	CHCGILCL	648 W RANDOLPH ST		
79	CHCGILCL	650 W LAKE ST		
80	CHCGILCL	651 W WASHINGTON BLVD		
81	CHCGILCL	654 W RANDOLPH ST		
82	CHCGILCL	656 W RANDOLPH ST		
83	CHCGILCL	659 W WASHINGTON BLVD		
84	CHCGILCL	660 W LAKE ST		
85	CHCGILCL	660 W RANDOLPH ST		
86	CHCGILCL	661 W LAKE ST		
87	CHCGILCL	728 W JACKSON BLVD		
88	CHCGILCL	730 W LAKE ST		
89	CHCGILCL	730 W RANDOLPH ST		
90	CHCGILCL	775 W JACKSON BLVD		
91	CHCGILCL	800 W JACKSON BLVD		
92	CHCGILCL	820 W JACKSON BLVD		
93	CHCGILCL	833 W JACKSON BLVD		
94	CHCGILCL	847 W JACKSON BLVD		
95	CHCGILCL	850 W JACKSON BLVD		
96	CHCGILFG	30 W MONROE ST	****	Discovery
97	CHCGILFR	1 E WACKER DR	****	Discovery
98	CHCGILFR	1 N DEARBORN ST		
99	CHCGILFR	1 N FRANKLIN ST	****	GeoResults
100	CHCGILFR	1 N LA SALLE ST		
101	CHCGILFR	1 N STATE ST		
102	CHCGILFR	1 N WACKER DR	****	Discovery
103	CHCGILFR	1 S FRANKLIN ST		
104	CHCGILFR	1 S STATE ST		
105	CHCGILFR	1 S WACKER DR	****	GeoResults
106	CHCGILFR	1 W MONROE ST		
107	CHCGILFR	1 W WACKER DR		
108	CHCGILFR	10 N DEARBORN ST		
109	CHCGILFR	10 S DEARBORN ST		
110	CHCGILFR	10 S LA SALLE ST		
111	CHCGILFR	100 N LA SALLE ST		
112	CHCGILFR	100 S MICHIGAN AVE		
113	CHCGILFR	100 W MONROE ST		
114	CHCGILFR	100 W RANDOLPH ST	****	GeoResults
115	CHCGILFR	101 N WACKER DR		
116	CHCGILFR	104 S MICHIGAN AVE		
117	CHCGILFR	105 W ADAMS ST		
118	CHCGILFR	105 W MADISON ST		
119	CHCGILFR	109 N DEARBORN ST		
120	CHCGILFR	110 N WACKER DR		
121	CHCGILFR	111 N STATE ST	****	Discovery
122	CHCGILFR	111 W MONROE ST	****	Discovery
123	CHCGILFR	111 W WASHINGTON ST		
124	CHCGILFR	115 S LA SALLE ST	****	Discovery
125	CHCGILFR	116 S MICHIGAN AVE		
126	CHCGILFR	118 N CLARK ST		
127	CHCGILFR	120 S LA SALLE ST	****	Discovery
128	CHCGILFR	120 S STATE ST		
129	CHCGILFR	120 W MADISON ST		
130	CHCGILFR	121 N LA SALLE ST		
131	CHCGILFR	123 N WACKER DR	****	GeoResults
132	CHCGILFR	123 W MADISON ST		
133	CHCGILFR	125 S CLARK ST	****	GeoResults
134	CHCGILFR	125 S FRANKLIN ST	****	Discovery
135	CHCGILFR	125 W MADISON ST		
136	CHCGILFR	131 S DEARBORN ST		
137	CHCGILFR	134 N LA SALLE ST		
138	CHCGILFR	135 S LA SALLE ST		
139	CHCGILFR	140 S DEARBORN ST	****	GeoResults
140	CHCGILFR	150 N MICHIGAN AVE		

141	CHCGILFR	150 N WACKER DR	****	GeoResults
142	CHCGILFR	151 E WACKER DR		
143	CHCGILFR	151 N STATE ST		
144	CHCGILFR	155 N WACKER DR		
145	CHCGILFR	160 N LA SALLE ST		
146	CHCGILFR	161 N CLARK ST		
147	CHCGILFR	162 N FRANKLIN ST		
148	CHCGILFR	166 W WASHINGTON ST		
149	CHCGILFR	168 N MICHIGAN AVE		
150	CHCGILFR	17 E MONROE ST		
151	CHCGILFR	17 N STATE ST		
152	CHCGILFR	171 N CLARK ST		
153	CHCGILFR	171 W RANDOLPH ST		
154	CHCGILFR	172 W ADAMS ST		
155	CHCGILFR	174 N MICHIGAN AVE		
156	CHCGILFR	175 N FRANKLIN ST		
157	CHCGILFR	177 N STATE ST		
158	CHCGILFR	178 W RANDOLPH ST		
159	CHCGILFR	18 S MICHIGAN AVE		
160	CHCGILFR	180 N LA SALLE ST		
161	CHCGILFR	180 N MICHIGAN AVE		
162	CHCGILFR	180 N WABASH AVE		
163	CHCGILFR	180 N WACKER DR		
164	CHCGILFR	180 W WASHINGTON ST		
165	CHCGILFR	181 W MADISON ST	****	GeoResults
166	CHCGILFR	185 N WABASH AVE		
167	CHCGILFR	19 S LA SALLE ST		
168	CHCGILFR	19 S WABASH AVE		
169	CHCGILFR	190 N STATE ST		
170	CHCGILFR	190 S LA SALLE ST		
171	CHCGILFR	191 N WACKER DR		
172	CHCGILFR	2 N LA SALLE ST	****	Discovery
173	CHCGILFR	2 N STATE ST		
174	CHCGILFR	20 N CLARK ST		
175	CHCGILFR	20 N MICHIGAN AVE		
176	CHCGILFR	20 N WACKER DR	****	Discovery
177	CHCGILFR	20 S CLARK ST		
178	CHCGILFR	200 N DEARBORN ST		
179	CHCGILFR	200 N LA SALLE ST	****	Discovery
180	CHCGILFR	200 N MICHIGAN AVE		
181	CHCGILFR	200 W ADAMS ST		
182	CHCGILFR	200 W MADISON ST		
183	CHCGILFR	200 W MONROE ST		
184	CHCGILFR	201 N CLARK ST		
185	CHCGILFR	201 N WELLS ST		
186	CHCGILFR	203 N LA SALLE ST		
187	CHCGILFR	203 N WABASH AVE		
188	CHCGILFR	205 W MONROE ST		
189	CHCGILFR	205 W RANDOLPH		
190	CHCGILFR	205 W WACKER DR		
191	CHCGILFR	208 N LA SALLE ST		
192	CHCGILFR	208 S LA SALLE ST		
193	CHCGILFR	208 S LASALLE ST		
194	CHCGILFR	208 W WASHINGTON ST		
195	CHCGILFR	209 S LA SALLE ST	****	Discovery
196	CHCGILFR	21 S CLARK ST		
197	CHCGILFR	211 W WACKER DR		
198	CHCGILFR	212 W WASHINGTON ST	****	GeoResults
199	CHCGILFR	216 W JACKSON BLVD		
200	CHCGILFR	22 W MONROE ST		
201	CHCGILFR	221 N LA SALLE ST		
202	CHCGILFR	221 S LA SALLE ST		
203	CHCGILFR	222 N LA SALLE ST	****	Discovery
204	CHCGILFR	222 W ADAMS ST	****	GeoResults
205	CHCGILFR	225 N LA SALLE ST		
206	CHCGILFR	225 W WASHINGTON ST		
207	CHCGILFR	227 W MONROE ST	****	GeoResults
208	CHCGILFR	228 N LA SALLE ST		
209	CHCGILFR	230 N MICHIGAN AVE	****	Discovery
210	CHCGILFR	230 S LA SALLE ST		
211	CHCGILFR	230 W MONROE ST	****	GeoResults
212	CHCGILFR	231 S LA SALLE ST	****	Discovery
213	CHCGILFR	233 E WACKER DR		
214	CHCGILFR	25 E WASHINGTON ST		

215	CHCGILFR	27 E MONROE ST		
216	CHCGILFR	28 N CLARK ST		
217	CHCGILFR	29 E MADISON ST		
218	CHCGILFR	29 N WACKER DR		
219	CHCGILFR	29 S LA SALLE ST		
220	CHCGILFR	3 FIRST NATIONAL PLZ		
221	CHCGILFR	30 E ADAMS ST		
222	CHCGILFR	30 E LAKE ST		
223	CHCGILFR	30 N LA SALLE ST	****	GeoResults
224	CHCGILFR	30 N MICHIGAN AVE		
225	CHCGILFR	30 S MICHIGAN AVE		
226	CHCGILFR	30 W WASHINGTON ST		
227	CHCGILFR	300 W WASHINGTON ST		
228	CHCGILFR	303 W MADISON ST	****	GeoResults
229	CHCGILFR	304 W RANDOLPH ST		
230	CHCGILFR	307 N MICHIGAN AVE		
231	CHCGILFR	308 W RANDOLPH ST		
232	CHCGILFR	309 W WASHINGTON ST	****	Discovery
233	CHCGILFR	311 W WASHINGTON ST		
234	CHCGILFR	312 W RANDOLPH ST		
235	CHCGILFR	316 N MICHIGAN AVE		
236	CHCGILFR	32 W RANDOLPH ST		
237	CHCGILFR	320 N MICHIGAN AVE		
238	CHCGILFR	33 N DEARBORN ST	****	GeoResults
239	CHCGILFR	33 N LA SALLE ST		
240	CHCGILFR	33 W MONROE ST		
241	CHCGILFR	333 N MICHIGAN AVE		
242	CHCGILFR	333 W LAKE ST		
243	CHCGILFR	333 W WACKER DR		
244	CHCGILFR	35 E WACKER DR	****	Discovery
245	CHCGILFR	35 W WACKER DR	****	Discovery
246	CHCGILFR	36 S WABASH AVE		
247	CHCGILFR	360 N MICHIGAN AVE	****	GeoResults
248	CHCGILFR	37 S WABASH AVE	****	Discovery
249	CHCGILFR	38 S DEARBORN ST		
250	CHCGILFR	39 S LA SALLE ST		
251	CHCGILFR	40 N WELLS ST		
252	CHCGILFR	5 N WABASH AVE		
253	CHCGILFR	5 S WABASH AVE		
254	CHCGILFR	50 S LASALLE ST		
255	CHCGILFR	50 W WASHINGTON ST		
256	CHCGILFR	55 E MONROE ST	****	Discovery
257	CHCGILFR	55 W MONROE ST	****	GeoResults
258	CHCGILFR	55 W WACKER DR	****	Discovery
259	CHCGILFR	6 E MONROE ST		
260	CHCGILFR	6 N MICHIGAN AVE		
261	CHCGILFR	60 W RANDOLPH ST		
262	CHCGILFR	63 E ADAMS ST		
263	CHCGILFR	65 E MADISON ST		
264	CHCGILFR	65 E WACKER DR		
265	CHCGILFR	65 E WACKER PL		
266	CHCGILFR	67 E ADAMS ST		
267	CHCGILFR	67 E MADISON ST		
268	CHCGILFR	68 E WACKER DR		
269	CHCGILFR	68 E WACKER PL		
270	CHCGILFR	69 W WASHINGTON ST		
271	CHCGILFR	70 E LAKE ST		
272	CHCGILFR	70 W MADISON ST		
273	CHCGILFR	71 E WACKER DR		
274	CHCGILFR	75 E WACKER DR		
275	CHCGILFR	76 E MONROE ST		
276	CHCGILFR	77 S DEARBORN ST		
277	CHCGILFR	77 W WACKER DR		
278	CHCGILFR	77 W WASHINGTON ST		
279	CHCGILFR	78 E WASHINGTON ST		
280	CHCGILFR	79 W MONROE ST		
281	CHCGILFR	8 E WACKER DR		
282	CHCGILFR	8 S MICHIGAN AVE		
283	CHCGILFR	9 N WABASH AVE		
284	CHCGILFR	99 W WASHINGTON ST		
285	CHCGILGQ	111 N WABASH AVE	****	Discovery
286	CHCGILID	1 E IBM PLZ		
287	CHCGILID	10 W HUBBARD ST		
288	CHCGILID	101 W GRAND AVE		

289	CHCGILID	108 W GRAND AVE		
290	CHCGILID	11 E HUBBARD ST		
291	CHCGILID	11 E ILLINOIS ST		
292	CHCGILID	11 W ILLINOIS ST		
293	CHCGILID	110 W HUBBARD ST		
294	CHCGILID	114 W ILLINOIS ST		
295	CHCGILID	116 W ILLINOIS ST		
296	CHCGILID	116 W KINZIE ST		
297	CHCGILID	118 W GRAND AVE		
298	CHCGILID	119 W HUBBARD ST		
299	CHCGILID	138 MERCHANDISE MART PLZ		
300	CHCGILID	15 W HUBBARD ST		
301	CHCGILID	154 W HUBBARD ST		
302	CHCGILID	159 E OHIO ST		
303	CHCGILID	159 W KINZIE ST		
304	CHCGILID	160 E ILLINOIS ST		
305	CHCGILID	161 E GRAND AVE		
306	CHCGILID	162 W GRAND AVE		
307	CHCGILID	162 W HUBBARD ST		
308	CHCGILID	17 W GRAND AVE		
309	CHCGILID	19 E OHIO ST		
310	CHCGILID	20 W HUBBARD ST		
311	CHCGILID	20 W KINZIE ST		
312	CHCGILID	200 W HUBBARD ST		
313	CHCGILID	200 WORLD TRADE CTR		
314	CHCGILID	210 W ILLINOIS ST		
315	CHCGILID	211 E OHIO ST		
316	CHCGILID	215 W OHIO ST		
317	CHCGILID	220 W KINZIE ST		
318	CHCGILID	222 MERCHANDISE MART PLZ		
319	CHCGILID	222 W HUBBARD ST		
320	CHCGILID	222 W KINZIE ST		
321	CHCGILID	223 W OHIO ST		
322	CHCGILID	225 W HUBBARD ST		
323	CHCGILID	225 W ILLINOIS ST		
324	CHCGILID	225 W OHIO ST		
325	CHCGILID	230 MERCHANDISE MART PLZ		
326	CHCGILID	25 W HUBBARD ST		
327	CHCGILID	300 E NORTH WATER ST		
328	CHCGILID	300 N STATE ST		
329	CHCGILID	300 W HUBBARD ST		
330	CHCGILID	301 E NORTH WATER ST	****	GeoResults
331	CHCGILID	303 E OHIO ST	****	GeoResults
332	CHCGILID	320 N DEARBORN ST		
333	CHCGILID	320 W ILLINOIS ST		
334	CHCGILID	321 N CLARK ST		
335	CHCGILID	322 E ILLINOIS ST		
336	CHCGILID	325 N LA SALLE DR		
337	CHCGILID	325 N WELLS ST		
338	CHCGILID	33 W GRAND AVE		
339	CHCGILID	330 N WABASH AVE		
340	CHCGILID	333 N DEARBORN ST		
341	CHCGILID	333 W HUBBARD ST		
342	CHCGILID	350 N CLARK ST	****	Discovery
343	CHCGILID	350 N LA SALLE DR		
344	CHCGILID	350 W HUBBARD ST		
345	CHCGILID	350 W KINZIE ST		
346	CHCGILID	351 W HUBBARD ST		
347	CHCGILID	36 E GRAND AVE		
348	CHCGILID	360 W ILLINOIS ST		
349	CHCGILID	400 N MCCLURG CT		
350	CHCGILID	400 N MICHIGAN AVE	****	Discovery
351	CHCGILID	400 N STATE ST		
352	CHCGILID	400 N WELLS ST		
353	CHCGILID	401 E ILLINOIS ST		
354	CHCGILID	401 N FRANKLIN ST		
355	CHCGILID	401 N MICHIGAN AVE	****	Discovery
356	CHCGILID	401 N WABASH AVE	****	GeoResults
357	CHCGILID	405 N WABASH AVE		
358	CHCGILID	410 N MICHIGAN AVE		
359	CHCGILID	410 W GRAND AVE		
360	CHCGILID	414 N ORLEANS ST		
361	CHCGILID	415 N DEARBORN ST		
362	CHCGILID	415 N LA SALLE DR		

363	CHCGILID	415 N STATE ST		
364	CHCGILID	420 N WABASH AVE		
365	CHCGILID	420 W GRAND AVE		
366	CHCGILID	429 W OHIO ST		
367	CHCGILID	43 E OHIO ST		
368	CHCGILID	430 N MICHIGAN AVE	****	GeoResults
369	CHCGILID	432 N CLARK ST		
370	CHCGILID	435 E ILLINOIS ST		
371	CHCGILID	435 N LA SALLE DR		
372	CHCGILID	44 E GRAND AVE		
373	CHCGILID	440 N ORLEANS ST		
374	CHCGILID	440 N WABASH AVE		
375	CHCGILID	440 N WELLS ST		
376	CHCGILID	444 N MICHIGAN AVE		
377	CHCGILID	444 N ORLEANS ST		
378	CHCGILID	444 N WABASH AVE		
379	CHCGILID	444 N WELLS ST		
380	CHCGILID	445 E OHIO ST		
381	CHCGILID	445 N LA SALLE DR		
382	CHCGILID	445 N WELLS ST		
383	CHCGILID	449 N CLARK ST		
384	CHCGILID	449 N WELLS ST		
385	CHCGILID	450 N CITYFRONT PLAZA DR		
386	CHCGILID	454 N COLUMBUS DR	****	GeoResults
387	CHCGILID	455 E ILLINOIS ST	****	GeoResults
388	CHCGILID	455 N CITY FRONT PLZ		
389	CHCGILID	455 N CITYFRONT PLAZA DR		
390	CHCGILID	500 N CLARK ST		
391	CHCGILID	500 N DEARBORN ST		
392	CHCGILID	500 N KINGSBURY ST		
393	CHCGILID	500 N MICHIGAN AVE		
394	CHCGILID	500 N WELLS ST		
395	CHCGILID	501 N CLARK ST		
396	CHCGILID	505 N LA SALLE DR		
397	CHCGILID	505 N MICHIGAN AVE		
398	CHCGILID	506 N CLARK ST		
399	CHCGILID	512 N MCCLURG CT		
400	CHCGILID	515 N DEARBORN ST		
401	CHCGILID	515 N LA SALLE DR		
402	CHCGILID	515 N STATE ST	****	GeoResults
403	CHCGILID	520 N MICHIGAN AVE		
404	CHCGILID	535 N MICHIGAN AVE		
405	CHCGILID	54 W HUBBARD ST		
406	CHCGILID	540 N DEARBORN ST		
407	CHCGILID	540 N LA SALLE DR		
408	CHCGILID	540 N MICHIGAN AVE	****	GeoResults
409	CHCGILID	541 N FAIRBANKS CT		
410	CHCGILID	551 N MICHIGAN AVE		
411	CHCGILID	57 W GRAND AVE		
412	CHCGILID	6 W HUBBARD ST		
413	CHCGILID	70 W HUBBARD ST		
414	CHCGILID	9 W HUBBARD ST		
415	CHCGILJB	11 S LA SALLE ST	****	Discovery
416	CHCGILLR	111 E WACKER DR	****	Discovery
417	CHCGILLR	111 S MICHIGAN AVE	****	Discovery
418	CHCGILLR	12 S MICHIGAN AVE		
419	CHCGILLR	130 E RANDOLPH ST		
420	CHCGILLR	155 N HARBOR DR		
421	CHCGILLR	155 N MICHIGAN AVE		
422	CHCGILLR	175 N HARBOR DR		
423	CHCGILLR	180 N STETSON AVE		
424	CHCGILLR	200 E RANDOLPH ST		
425	CHCGILLR	200 N COLUMBUS DR		
426	CHCGILLR	205 N MICHIGAN AVE		
427	CHCGILLR	211 N STETSON AVE		
428	CHCGILLR	225 N MICHIGAN AVE		
429	CHCGILLR	233 N MICHIGAN AVE	****	GeoResults
430	CHCGILLR	300 E RANDOLPH ST		
431	CHCGILLR	303 E WACKER DR		
432	CHCGILLR	323 E WACKER DR		
433	CHCGILLR	360 E RANDOLPH ST		
434	CHCGILLR	400 E RANDOLPH ST		
435	CHCGILMO	131 N GREEN ST		
436	CHCGILMO	182 N HALSTED ST		

437	CHCGILMO	330 N JEFFERSON ST		
438	CHCGILMO	541 W ROOSEVELT RD		
439	CHCGILMO	555 W ROOSEVELT RD		
440	CHCGILMO	600 W KINZIE ST		
441	CHCGILMO	800 W RANDOLPH ST		
442	CHCGILMO	805 W RANDOLPH ST		
443	CHCGILMO	806 W WASHINGTON BLVD		
444	CHCGILMO	812 W VAN BUREN ST		
445	CHCGILMO	822 W WASHINGTON BLVD		
446	CHCGILNQ	566 W ADAMS ST	****	Discovery
447	CHCGILPF	55 E WASHINGTON ST	****	Discovery
448	CHCGILSU	211 E ONTARIO ST		
449	CHCGILSU	212 E OHIO ST		
450	CHCGILSU	215 W ONTARIO ST		
451	CHCGILSU	216 W OHIO ST		
452	CHCGILSU	226 E ONTARIO ST		
453	CHCGILSU	230 E OHIO ST		
454	CHCGILSU	232 E OHIO ST		
455	CHCGILSU	233 E ONTARIO ST		
456	CHCGILSU	320 W OHIO ST		
457	CHCGILSU	363 W ONTARIO ST		
458	CHCGILSU	4 E OHIO ST		
459	CHCGILSU	400 E OHIO ST		
460	CHCGILSU	401 E ONTARIO ST		
461	CHCGILSU	401 W ONTARIO ST		
462	CHCGILSU	411 W ONTARIO ST		
463	CHCGILSU	434 W ONTARIO ST		
464	CHCGILSU	600 N DEARBORN ST		
465	CHCGILSU	600 N MCCLURG CT		
466	CHCGILSU	600 N MICHIGAN AVE		
467	CHCGILSU	605 N MICHIGAN AVE		
468	CHCGILSU	609 N WELLS ST		
469	CHCGILSU	612 N MICHIGAN AVE		
470	CHCGILSU	615 N WABASH AVE		
471	CHCGILSU	617 N STATE ST		
472	CHCGILSU	625 N MICHIGAN AVE		
473	CHCGILTB	435 N MICHIGAN AVE	****	Discovery
474	CHCGILTM	536 S CLARK ST	****	Discovery
475	CHCGILWB	1 BANK ONE PLZ		
476	CHCGILWB	1006 S MICHIGAN AVE		
477	CHCGILWB	107 W VAN BUREN ST		
478	CHCGILWB	11 E ADAMS ST		
479	CHCGILWB	111 W JACKSON BLVD	****	Discovery
480	CHCGILWB	1121 S CLINTON ST		
481	CHCGILWB	1130 S MICHIGAN AVE		
482	CHCGILWB	1130 S WABASH AVE		
483	CHCGILWB	117 W HARRISON ST		
484	CHCGILWB	1212 S MICHIGAN AVE		
485	CHCGILWB	122 S MICHIGAN AVE	****	GeoResults
486	CHCGILWB	1234 S MICHIGAN AVE		
487	CHCGILWB	1300 S LAKE SHORE DR		
488	CHCGILWB	1304 S INDIANA AVE		
489	CHCGILWB	1312 S MICHIGAN AVE		
490	CHCGILWB	1316 S MICHIGAN AVE		
491	CHCGILWB	1325 S WABASH AVE		
492	CHCGILWB	1326 S MICHIGAN AVE		
493	CHCGILWB	1333 S WABASH AVE		
494	CHCGILWB	1340 S MICHIGAN AVE		
495	CHCGILWB	1349 S WABASH AVE		
496	CHCGILWB	1353 S WABASH AVE		
497	CHCGILWB	14 E JACKSON BLVD		
498	CHCGILWB	1401 S STATE ST		
499	CHCGILWB	141 W JACKSON BLVD	****	Discovery
500	CHCGILWB	1430 S MICHIGAN AVE		
501	CHCGILWB	1444 S MICHIGAN AVE		
502	CHCGILWB	1455 S MICHIGAN AVE		
503	CHCGILWB	1545 S STATE ST		
504	CHCGILWB	1550 S INDIANA AVE		
505	CHCGILWB	1556 S MICHIGAN AVE		
506	CHCGILWB	161 W HARRISON ST		
507	CHCGILWB	1613 S MICHIGAN AVE		
508	CHCGILWB	1712 S PRAIRIE AVE		
509	CHCGILWB	1727 S INDIANA AVE		
510	CHCGILWB	1730 S INDIANA AVE		

511	CHCGILWB	175 JACKSON PL		
512	CHCGILWB	175 W JACKSON BLVD	****	Discovery
513	CHCGILWB	18 W JACKSON BLVD		
514	CHCGILWB	19 W JACKSON BLVD		
515	CHCGILWB	2 E 8TH ST		
516	CHCGILWB	20 E JACKSON BLVD		
517	CHCGILWB	200 W JACKSON BLVD	****	GeoResults
518	CHCGILWB	201 S STATE ST		
519	CHCGILWB	202 S STATE ST		
520	CHCGILWB	209 W JACKSON BLVD	****	Discovery
521	CHCGILWB	211 S CLARK ST		
522	CHCGILWB	218 S WABASH AVE		
523	CHCGILWB	220 S STATE ST		
524	CHCGILWB	223 W JACKSON BLVD	****	GeoResults
525	CHCGILWB	226 S WABASH AVE		
526	CHCGILWB	228 S WABASH AVE		
527	CHCGILWB	230 S DEARBORN ST		
528	CHCGILWB	230 S LA SALLE ST	****	Discovery
529	CHCGILWB	2301 S LAKE SHORE DR		
530	CHCGILWB	232 S WABASH AVE		
531	CHCGILWB	234 S WABASH AVE		
532	CHCGILWB	247 S STATE ST		
533	CHCGILWB	28 E JACKSON BLVD		
534	CHCGILWB	300 S MICHIGAN AVE		
535	CHCGILWB	300 S WACKER DR		
536	CHCGILWB	310 S FINANCIAL PL		
537	CHCGILWB	310 S MICHIGAN AVE	****	GeoResults
538	CHCGILWB	311 S WACKER DR	****	Discovery
539	CHCGILWB	315 S PLYMOUTH CT		
540	CHCGILWB	318 S MICHIGAN AVE		
541	CHCGILWB	320 S PLYMOUTH CT		
542	CHCGILWB	321 S PLYMOUTH CT		
543	CHCGILWB	323 S FRANKLIN ST		
544	CHCGILWB	327 S LA SALLE ST		
545	CHCGILWB	328 S WABASH AVE		
546	CHCGILWB	33 W JACKSON BLVD		
547	CHCGILWB	330 S WELLS ST		
548	CHCGILWB	332 S MICHIGAN AVE		
549	CHCGILWB	333 S STATE ST		
550	CHCGILWB	333 S WABASH AVE		
551	CHCGILWB	40 E 9TH ST		
552	CHCGILWB	400 E MONROE ST		
553	CHCGILWB	400 S FINANCIAL PL		
554	CHCGILWB	400 S LA SALLE ST		
555	CHCGILWB	400 S STATE ST		
556	CHCGILWB	401 S CLINTON ST		
557	CHCGILWB	401 S LA SALLE ST		
558	CHCGILWB	401 S STATE ST		
559	CHCGILWB	407 S DEARBORN ST		
560	CHCGILWB	410 S MICHIGAN AVE		
561	CHCGILWB	411 S WELLS ST		
562	CHCGILWB	412 S DEARBORN ST		
563	CHCGILWB	412 S WELLS ST		
564	CHCGILWB	417 S DEARBORN ST		
565	CHCGILWB	427 S LA SALLE ST	****	Discovery
566	CHCGILWB	431 S DEARBORN ST		
567	CHCGILWB	433 W HARRISON ST		
568	CHCGILWB	440 S LA SALLE ST	****	Discovery
569	CHCGILWB	47 W POLK ST		
570	CHCGILWB	50 E CONGRESS PKWY		
571	CHCGILWB	500 S CLINTON ST		
572	CHCGILWB	520 S FEDERAL ST		
573	CHCGILWB	525 W VAN BUREN ST		
574	CHCGILWB	527 S WELLS ST		
575	CHCGILWB	529 S WABASH AVE		
576	CHCGILWB	542 S DEARBORN ST		
577	CHCGILWB	547 W JACKSON BLVD		
578	CHCGILWB	55 E JACKSON BLVD		
579	CHCGILWB	55 W VAN BUREN ST		
580	CHCGILWB	550 W TAYLOR ST		
581	CHCGILWB	550 W VAN BUREN ST		
582	CHCGILWB	558 W DE KOVEN ST		
583	CHCGILWB	571 W JACKSON BLVD		
584	CHCGILWB	59 E VAN BUREN ST		

585	CHCGILWB	600 S DEARBORN ST		
586	CHCGILWB	600 S FEDERAL ST		
587	CHCGILWB	600 S MICHIGAN AVE		
588	CHCGILWB	600 W TAYLOR ST		
589	CHCGILWB	601 S LA SALLE ST	****	Discovery
590	CHCGILWB	601 W POLK ST	****	GeoResults
591	CHCGILWB	618 S MICHIGAN AVE		
592	CHCGILWB	619 S LA SALLE ST		
593	CHCGILWB	621 S PLYMOUTH CT		
594	CHCGILWB	626 S CLARK ST		
595	CHCGILWB	630 W HARRISON ST		
596	CHCGILWB	633 S PLYMOUTH CT		
597	CHCGILWB	637 S DEARBORN ST		
598	CHCGILWB	644 S CLARK ST		
599	CHCGILWB	65 E HARRISON ST		
600	CHCGILWB	65 W JACKSON BLVD		
601	CHCGILWB	650 S CLARK ST		
602	CHCGILWB	651 S WELLS ST		
603	CHCGILWB	700 S CLINTON ST		
604	CHCGILWB	700 S FEDERAL ST		
605	CHCGILWB	711 S DEARBORN ST		
606	CHCGILWB	714 S DEARBORN ST		
607	CHCGILWB	717 S WELLS ST		
608	CHCGILWB	720 S MICHIGAN AVE		
609	CHCGILWB	725 S WELLS ST	****	Discovery
610	CHCGILWB	727 S DEARBORN ST		
611	CHCGILWB	732 S FINANCIAL PL		
612	CHCGILWB	739 S CLARK ST		
613	CHCGILWB	800 S DESPLAINES ST		
614	CHCGILWB	800 S MICHIGAN AVE		
615	CHCGILWB	800 S WELLS ST	****	Discovery
616	CHCGILWB	801 S CANAL ST		
617	CHCGILWB	815 S WABASH AVE		
618	CHCGILWB	819 S WABASH AVE		
619	CHCGILWB	820 S MICHIGAN AVE		
620	CHCGILWB	85 W JACKSON BLVD		
621	CHCGILWB	899 S PLYMOUTH CT		
622	CHCGILWB	910 S MICHIGAN AVE		
623	CHCGILWE	219 S DEARBORN ST	****	Discovery
624	CHCGILWX	53 W JACKSON BLVD	****	Discovery
625	CHCGILWX	77 W JACKSON BLVD	****	Discovery
626	CHCGILWZ	555 W MADISON ST	****	Discovery
627	CHCGILYF	610 S CANAL ST	****	Discovery
628	CHCILIO	600 W JACKSON BLVD	****	Discovery
629	CHCILUV	810 W WASHINGTON BLVD	****	Discovery
630	CHCNILBO	343 S DEARBORN ST	****	Discovery
631	DWGVILDG	2905 BUTTERFIELD RD		
632	EMHRILET	111 WINDSOR DR		
633	EMHRILET	122 W 22ND ST		
634	EMHRILET	17W635 BUTTERFIELD RD		
635	EMHRILET	17W662 BUTTERFIELD RD		
636	EMHRILET	17W682 BUTTERFIELD RD		
637	EMHRILET	17W697 BUTTERFIELD RD		
638	EMHRILET	17W703 BUTTERFIELD RD		
639	EMHRILET	17W705 BUTTERFIELD RD		
640	EMHRILET	17W715 BUTTERFIELD RD		
641	EMHRILET	17W720 BUTTERFIELD RD		
642	EMHRILET	17W735 BUTTERFIELD RD		
643	EMHRILET	17W755 BUTTERFIELD RD		
644	EMHRILET	1S443 SUMMIT AVE		
645	EMHRILET	1S660 MIDWEST RD		
646	EMHRILET	2025 WINDSOR DR		
647	EMHRILET	210 W 22ND ST		
648	EMHRILET	300 W 22ND ST		
649	LBRDILLM	1 LINCOLN CTR		
650	LBRDILLM	17W733 BUTTERFIELD RD		
651	LBRDILLM	18 W BUTTERFIELD RD		
652	LBRDILLM	18W140 BUTTERFIELD RD		
653	LBRDILLM	1S450 SUMMIT AVE		
654	LBRDILLM	2901 BUTTERFIELD RD		
655	OKBRILAN	1000 JORIE BLVD	****	Discovery
656	OKBRILCC	2122 YORK RD	****	Discovery
657	OKBRILEI	1010 JORIE BLVD	****	Discovery
658	OKBRILGZ	2001 YORK RD	****	Discovery

659	OKBRILJB	900 JORIE BLVD	****	Discovery
660	OKBRILOA	1 MCDONALDS DR		
661	OKBRILOA	1 MID AMERICA PLZ	****	GeoResults
662	OKBRILOA	1 OAKBROOK CTR		
663	OKBRILOA	1 OAKBROOK TER		
664	OKBRILOA	1 TOWER LN		
665	OKBRILOA	10 OAKBROOK CTR	****	Discovery
666	OKBRILOA	100 OAKBROOK CTR		
667	OKBRILOA	1100 JORIE BLVD		
668	OKBRILOA	1110 JORIE BLVD		
669	OKBRILOA	1111 W 22ND ST	****	GeoResults
670	OKBRILOA	11465 W CERMAK RD		
671	OKBRILOA	1200 HARGER RD		
672	OKBRILOA	1200 JORIE BLVD		
673	OKBRILOA	1211 W 22ND ST		
674	OKBRILOA	125 WINDSOR DR		
675	OKBRILOA	1301 W 22ND ST		
676	OKBRILOA	1314 KENSINGTON RD		
677	OKBRILOA	1315 W 22ND ST		
678	OKBRILOA	1400 16TH ST		
679	OKBRILOA	1401 W 22ND ST		
680	OKBRILOA	1415 W 22ND ST		
681	OKBRILOA	1420 KENSINGTON RD		
682	OKBRILOA	1500 16TH ST		
683	OKBRILOA	1515 W 22ND ST		
684	OKBRILOA	1520 KENSINGTON RD		
685	OKBRILOA	1550 SPRING RD		
686	OKBRILOA	1600 16TH ST		
687	OKBRILOA	1603 16TH ST		
688	OKBRILOA	17W220 22ND ST		
689	OKBRILOA	17W240 22ND ST		
690	OKBRILOA	17W300 22ND ST		
691	OKBRILOA	17W480 22ND ST		
692	OKBRILOA	17W740 22ND ST		
693	OKBRILOA	17W754 22ND ST		
694	OKBRILOA	18W100 22ND ST		
695	OKBRILOA	18W200 22ND ST		
696	OKBRILOA	1900 SPRING RD		
697	OKBRILOA	1901 W 22ND ST		
698	OKBRILOA	1909 SPRING RD	****	GeoResults
699	OKBRILOA	2 MID AMERICA PLZ		
700	OKBRILOA	2 OAKBROOK CTR		
701	OKBRILOA	2000 CLEARWATER DR		
702	OKBRILOA	2000 SPRING RD		
703	OKBRILOA	2000 YORK RD		
704	OKBRILOA	2001 SPRING RD		
705	OKBRILOA	2015 SPRING RD		
706	OKBRILOA	2021 SPRING RD		
707	OKBRILOA	2100 CLEARWATER DR		
708	OKBRILOA	2115 BUTTERFIELD RD		
709	OKBRILOA	2122 W 22ND ST		
710	OKBRILOA	2155 W 22ND ST		
711	OKBRILOA	2208 MIDWEST RD		
712	OKBRILOA	2210 CAMDEN CT		
713	OKBRILOA	2210 MIDWEST RD		
714	OKBRILOA	2211 YORK RD		
715	OKBRILOA	2215 YORK RD		
716	OKBRILOA	2221 CAMDEN CT	****	Discovery
717	OKBRILOA	2301 W 22ND ST	****	GeoResults
718	OKBRILOA	2301 YORK RD		
719	OKBRILOA	2311 W 22ND ST		
720	OKBRILOA	2407 W 22ND ST		
721	OKBRILOA	2425 W 22ND ST		
722	OKBRILOA	2601 W 22ND ST		
723	OKBRILOA	2603 W 22ND ST		
724	OKBRILOA	2605 W 22ND ST		
725	OKBRILOA	2607 W 22ND ST		
726	OKBRILOA	2625 BUTTERFIELD RD		
727	OKBRILOA	2707 BUTTERFIELD RD	****	GeoResults
728	OKBRILOA	2803 BUTTERFIELD RD		
729	OKBRILOA	2805 BUTTERFIELD RD		
730	OKBRILOA	2809 BUTTERFIELD RD	****	GeoResults
731	OKBRILOA	2907 BUTTERFIELD RD		
732	OKBRILOA	3001 BUTTERFIELD RD		

733	OKBRILOA	3003 BUTTERFIELD RD	****	GeoResults
734	OKBRILOA	3121 BUTTERFIELD RD		
735	OKBRILOA	6 OAKBROOK CTR		
736	OKBRILOA	700 COMMERCE DR		
737	OKBRILOA	701 HARGER RD		
738	OKBRILOA	711 JORIE BLVD	****	GeoResults
739	OKBRILOA	72 OAKBROOK CTR		
740	OKBRILOA	800 ENTERPRISE DR		
741	OKBRILOA	800 JORIE BLVD		
742	OKBRILOA	810 JORIE BLVD	****	GeoResults
743	OKBRILOA	814 COMMERCE DR	****	GeoResults
744	OKBRILOA	815 COMMERCE DR	****	Discovery
745	OKBRILOA	820 JORIE BLVD		
746	OKBRILOA	823 COMMERCE DR		
747	OKBRILOA	900 COMMERCE DR		
748	OKBRILOA	903 COMMERCE DR		
749	OKBRILOA	915 HARGER RD		

ICC Docket No. 03-0596
2.0 Smith Direct Loop

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SECTION 3

About Telecommunications BusinessScores 4.0

What is Telecommunications BusinessScores 4.0?

Telecommunication BusinessScores 4.0 is the fourth generation of a unique data product providing usage estimates of the key telecommunication services for every record in the D&B database of approximately 13 million business establishments, including some 8 million buildings. These unique estimates are derived from TNS Telecoms' (TNST) proprietary primary data, gathered from multiple waves of its quarterly *BusinessWave*™ telephone survey totaling over 30,000 business firms (see *Appendix 2 – "The BusinessWave Survey"*). The original, core variables in Telecommunications BusinessScores 4.0 are designed to cover the major sources of business telecommunication spending, product presence and usage, and other geographical and building attributes, at the *individual business location*, and contain the following types information:

- Point & Census Geocodes
- LATA Code
- V&H Coordinates
- CDP and CSD FIPS Codes
- MSA/CMSA/PMSA Code
- Urban/Rural Flag
- CPL Code
- Total firms in building
- Total building Local Bill
- Total bldg. Toll Bill
- Total bldg. Toll minutes
- Total building access lines
- ILEC Code
- Number of Working Telephone Numbers
- CLLI-11 & CLLI-8 Codes
- Total Communications Bill
- Total Wireline Bill (by All, Voice, & Data applications)
- Total Wireless Bill
- Total Local Phone Bill
- Total Toll Bill (by both intraLATA & interLATA)
- Total Toll Minutes (by both intraLATA & interLATA)
- "1-800" Bill & Service Probability
- International Calling Prob.
- Centrex Probability
- PBX Probability
- Other types Probability
- Distance to the C.O.
- Flags by Data Services type
- Consolidates and Site Broadband Demand
- Business Internet Access Probability
- Probability of Hi-Speed Internet Access
- E-commerce Utilization for Selling & Purchasing
- Probability of Data Lines
- Probability of xDSL Lines
- Probability of T-1 Lines
- Probability of T-3 Lines
- Switched Bus. Access Lines
- Probability of Special Access Business Lines
- Probability of Private Lines

The "types" of Telecommunications BusinessScores can be broken out into six distinct categories:

1. **Demand Estimates:** contain information on volumetric estimates of telco-related demand, such as estimated local phone bill, intra and interLATA toll bill, wireless bill, switched access line equivalents, etc.
2. **Need Indicators:** provide insights on the probabilities of specific types of services being in-place at the firm, such as Centrex systems, PBX systems, private lines, etc.

3. **"CPL" Building Data:** include the **CPL Code** that identifies the unique building, as well as aggregations at the building level (based on summing-up the contributions of all the tenants in the building), such as total firms, total spending, total lines, etc.
4. **Bandwidth Measures:** contain the "Broadband Demand" suite (the Consolidated Broadband Demand and Site Broadband Demand scores), and other related scores, such as the "Data Services Range Flag" variables.
5. **Central Office & Wire Centers:** provide information on the ILEC Central Office and Wire Center associated with the firm via TNST's proprietary assignment methodology and via more traditional GIS-based Wire Center boundary assignments, and the distances between the firm and these C.O.s.
6. **Geographic Identifiers:** includes Telco geographies associated with the firm, such as ILEC Service Area Code and LATA Code, as well as the most accurately assignable values for Census Geocode (down to the Census block) and point geocoordinates (in latitude/longitude).

Having this many different categories and variety of Telecommunications BusinessScores data elements provides users with the ability to address the widest range of telecommunications applications available, at the greatest degree of consistency and accuracy available for modeled data.

Why were Telecommunications BusinessScores built?

Ongoing deregulation of the telecommunications industry, the rapid pace of technological innovation and development in the industry, and the volatile corporate changes happening even to the largest players in the telecommunications industry, are creating a highly competitive and dynamic market. Traditional telecommunication providers are looking to expand and protect their customer base and need to identify their best customers, while targeting new prospects that are like them. New providers of telecommunications products and services often have offerings that are best suited to a select "niche" of all firms, and are trying to grow their share of the market at the expense of the established incumbents. The Telecommunications BusinessScores were built for firms in or associated with the entire communications industry to satisfy a growing demand for detailed telecommunications descriptors and usage estimates by *individual firm* – or by *individual building* – based on the company's definition of exactly who constitutes the actual telecom end "customer".

The Telecommunications BusinessScores are designed to allow telecommunication product and service providers to design efficient sales and marketing campaigns by enabling these firms to select their target customers, using direct and relevant criteria. For example, a telecommunication provider may have designed an offering that is likely going to be of interest to those firms who have a PBX system. Instead of randomly marketing to all firms, or selecting firms based on a simple criterion such as number of employees, the service can now directly select only those firms that have a high probability of actually having a PBX system. The Telecommunication BusinessScores are designed to allow for precise targeting of customer or

prospect lists for any telecommunication product or service provider, or for any other firm with a need to have both strategic and tactical estimates of detailed telecommunications-related information, at a detailed or aggregate level.

Who built them, and what are they based on?

The modelers and industry experts at TNST built the first generation of syndicated Telecommunications BusinessScores in late 1995, as part of a strategic alliance formed with the Dun & Bradstreet Corporation. The first commercial offering of Telecommunications BusinessScores was made through D&B in 1996 under the name "Telecom Demand Estimators".

The earlier generations of these models were created through the use of two main sources of primary, proprietary data. The first source was actual usage data from an integrated billing database of over 880,000 firms from an industry consortium called the *National Telecommunications Demand Study* (or "NDTS" – made up of representatives from all the major local phone companies – which was administered by PNR and Associates, the predecessor to TNST). The second source was PNR's *BusinessWave* survey of 3,500 businesses (which was initially run as an annual, diary-recall survey from a pre-recruited panel), then linked to Dun & Bradstreet firmographic data and offered as syndicated, value-added data elements to D&B's national D-U-N-S file.

Several years later, PNR and Associates was absorbed into INDETEC International, Inc., a San Diego-based consulting firm that specialized in cost modeling and expert testimony for state telecommunications regulatory proceedings. In November 1999, INDETEC International was acquired by Taylor Nelson Sofres, a UK-based corporation that is the fourth largest marketing research company in the world, and currently does business in the United States under the corporate business sector name of "TNS Telecoms", or "TNST".

Along with the evolution of TNST, the BusinessWave survey evolved as well, growing and changing, until it has reach its current state: a 45-minute, guided telephone interview from a continually changing, nationally representative sample of some 3500 business firms per quarter. The content and size of the BusinessWave survey has grown so large that TNST has now been able, by aggregating the most recent eight quarters of the survey, to move to the BusinessWave data as ***the complete and single underlying source*** for all Telecommunications BusinessScores modeling content.

Each year, TNST regenerates the core models underlying the Telecommunications BusinessScores data elements, based on the most recent multi-wave set of *BusinessWave* data (comprised of approximately 30,000+ records), and also refreshes the entire D&B D-U-N-S file each month with the most current data elements. TNST has also automated the process of creating and validating the models to the point where it may be possible, in the near future, to completely re-build and update ***all*** of the models (using the latest eight quarters of aggregated BusinessWave data) every 90 days, to ensure that users are always working with the most recent view of the current telecommunications market.

When were they built?

The vintage of the data for the current 4.0 version of BusinessScores ranges from year 2001 to 2003, depending on the specific release. The models were initially developed in the first and second quarters of 2003, from the most recent 8 quarterly “waves” of the *BusinessWave* survey data at the time. This most recent version of the entire product will be rolled out in the third quarter of 2003. TNST is also greatly expanding the quantity and scope of the Telecommunications BusinessScores data elements, to keep pace with the demands of the telecom industry’s increasingly sophisticated requirements, so there may additional variables released in the near future as optional supplements to the data elements described here.

How were they built?

The *BusinessWave* data records were statistically analyzed to develop estimates for all firms on the D&B database. TNST takes the approach that, rather than imbedding any subjective assumptions in the models themselves, the models should allow the data to speak for itself by reflecting actual behavior, based on real-world data at the firm level. TNST uses an advanced and proprietary statistical modeling processes to create the *BusinessScores* underlying models, so that every record in the D&B database that goes through the scoring process receives a set of BusinessScores data elements, irrespective of the completeness of the D&B firmographic information.

Two of the later enhancements used in the most recent version of the Telecommunications BusinessScores modeling process involve:

- 1) Transitioning to a view of a firm’s “access lines” in terms of “access line equivalents” (a “line equivalent” being a 56 Kbyte slice of digital switch bandwidth); and,
- 2) Segmenting the business firms into four distinct types of “access line equivalents”, which consist of:
 - “Non-PBX” (POTS & Centrex) lines.
 - “PBX” lines using “Regular” trunks.
 - “PBX” lines using “T1-based” trunks.
 - “PBX” lines using “T3-based” trunks.

Both of these enhancements capture the effects of the different options that can be used to address a firm’s overall communications requirements using new technologies, the extensive business use of the internet and the growth of the demand for bandwidth, and the convergence of voice and data traffic requirements through the use of advanced digital switches.

More detailed information on the Telecommunications BusinessScores modeling methodology, and how they are applied to the D&B national file appears in **Section 4: “The Modeling and Scoring Process”**.

SECTION 4

The Modeling and Scoring Process

Overview

This section describes the general processes and methodologies used to create the underlying Telecommunications BusinessScores models, how these models get transformed into the data elements and applied to the D&B national file, and how the final results are validated against reality to ensure accuracy of the end product.

The *BusinessWave* Database

As mentioned earlier, this is the first generation of the Telecommunications BusinessScores product where every volumetric element is a true model driven directly from the underlying data source. Most of this was true with Version 3.x, the notable exceptions to this rule being any non-modeled elements (such as the geographic code look-ups), and the "Broadband Potential" scores, which were "constructs" – not true models – that embodied a series of expert rules about how certain bandwidth characteristics move with certain other firmographic variables.

The Telecommunications BusinessScores suite of data elements uses TNS Telecoms' proprietary **BusinessWave**[®] telephone survey information as its source data. BusinessWave is the longest-running commercial survey initiative of its type (since 1995), and is also the widest in terms of telecommunications content. Each calendar quarter, TNST telephone interviewers contact a nationally representative cross-section of business firms, and conduct a 45-minute interview with the appropriate knowledgeable contact(s) at the firm. Information on that firm's behavior and usage relating to telecommunications-related products and services is gathered, across these categories:

- **Switch/Line Types**
 - POTS, Key, PBX & Centrex
- **Local Telecommunications Usage**
 - Voice component
 - Data component
- **Regional Toll, Domestic and International Spending**
- **Private/Dedicated Lines**
 - T1 lines
 - T3 lines
 - Fractional T1 lines
 - DSO lines
 - Dedicated VGA (Tie)
 - Other Private/Dedicated lines
- **Dedicated Facilities**
- **800/WATS Service**
- **Wireless Services**
 - Spending
 - Voice & Data components
- **Internet Service**
- **Company Web site**
 - Use of hosting services
 - E-commerce activity
- **Employee Access to Internet**
 - Type of Access
 - Use of Internet
- **Directory Advertising**
- **Company Location Firmographics**

Data Cleansing and Preparation

Each quarter's survey nets over 3,500 respondents, and the telephone survey mechanism insures that both the appropriate person at the firm is being interviewed, and that the interviewers can clarify any respondent confusion about the questions being asked, thereby ensuring that only correct and accurate information is being captured. For consistency's sake, the majority of the survey content is identical across quarterly "waves" of the survey, with a minority of the survey reserved for "special studies" – topical issues that can vary each quarter.

To gain statistical stability, the eight most recent consecutive quarterly "waves" of the survey are combined together over a two-year period to form a "MultiWave" database of over 30,000 individual business respondents, which also include the self-reported firmographics of each business establishment. This "Multi-Wave" core of current, detail respondent data forms the basis of the product, and is key to the quality of the Telecommunications BusinessScores built from it. (For more details of the Survey, see *Appendix 2: "The BusinessWave Survey"*)

Once the BusinessWave data has been aggregated as a starting point the overall process can now begin. TNST starts out with a scan of the combined BusinessWave dataset, using its own proprietary software, which analyzes the data in terms of TNST proprietary "clusters", which exist at a fairly granular level of detail. The purpose of looking at the self-reported values in these clusters is to determine the overall norms for the clusters, and then to identify records that look like they are peculiar "outliers", in that their behavior relative to the group they are in appears extreme. If these values are too extreme (according to an internal proprietary rule set), these records are flagged as "outliers", and not used in the development of any scores. By pre-screening these "outlier" records, TNST ensures that no one single record has a disproportionate effect on the overall modeling process, leading to potential over- or under-estimation.

The Modeling Process

(The processes below apply only to those truly "modeled" BusinessScores data elements associated with telecommunications behaviors, such as the estimates of usage, or probability of having certain services. Other elements, such as geographic codes, point coordinates, and CLLI-code related attributes, are not "modeled", but are assigned by a separate combination of both commercial and proprietary computer software, which makes direct assignments to the record, based on key information in the firm's address and/or telephone number information).

To create the underlying models ultimately used to create the BusinessScores data elements, special TNST "Multivariate Visualization" software is used to allow the core BusinessWave data to speak for itself, to identify trends in the data, and to gain insight on which firmographic elements are the most likely to emerge as viable "driver" variables for the creation of the scores. After these "driver" elements have been identified as both: a) having a significant effect on the attribute being modeled; and, b) being present on a significant number of the records on the national D&B file, TNST then uses advanced multivariate, non-linear statistical regression and LOGIT techniques applied to the "MultiWave" database to derive the underlying models.

The greatest advantage of having a large, consistent source of primary data from which to build models, and an objective way of determining the driving elements, is that *one does not have to make any underlying assumptions regarding causality*, thereby eliminating any errors of commission – or omission – associated with such assumptions.

After the BusinessWave dataset has been cleansed, prepared, and purged of outlier records, the core modeling can begin. Most of the modeling processes used in the development of the Telecommunications BusinessScores is fairly generic, but what makes the Version 4.0 data elements really unique are the following:

1. **Unique Data Source:** The BusinessScores content, at the firm level, is unlike any other telecommunications-related data available in the marketplace, in terms of detail, timeliness, and scope, and this is reflected in the quality and accuracy of the derived scores.
2. **Unique Data Hygiene:** Special pre-processing routines check the data during the survey process to catch anomalous responses before they enter the database, so these can be clarified and corrected by the telephone interviewer, and additional processing routines search out anomalous “outlier” records at a granular level, to ensure they do not enter the modeling process.
3. **Unique Development Tools:** The underlying techniques of the majority of the models that TNST develops from the BusinessWave data are basically generic, but carry some distinctive innovations necessary to deal with telecommunications behavior distributions (i.e., multivariate, non-linear statistical regression is used for developing models of continuous fields, such as spending amounts for services; LOGIT is used for the development of discontinuous fields – such as “Have a PBX system?” where “0”=“No”, and “1”=“Yes” – that are later displayed as continuous probabilities). The specialized software that is used to create the models is proprietary TNST software that also performs some “non-generic” enhancements, produces the model code, performance statistics, error bounds, and many additional functions that are critical for the rapid, automated creation of accurate models.
4. **Unique Product Methodology:** While the majority of TNST’s modeling might be considered “traditional”, there is one point that really differentiates it from competitors’ approaches, and that is the way TNS handles the modeling of low and high bandwidth-related variables. These techniques take full advantage of the BusinessWave detail, to provide extremely accurate estimates of switched access line equivalents, and Broadband Demand (*see below for details*). Other competitors not having access to this combination of data and methodology frequently make overly simplistic and anachronistic assumptions (such as “T-1s are 100% dedicated to data applications”; or, “a firm has only one type of access line”). This generally leads to overestimating or mischaracterizing the true nature of the business demand at the firm level, because they have no objective sources of current data at this same level to compare to.

5. **Unique Product Validation:** While TNST can provide many of the conventional exhibits describing the model's performance and validating the results, one of the unique advantages of having a continuous, quarterly source of syndicated data is that it allows the models to be continuously grounded in reality, in that the predicted values of their scores can always be compared to the actual incoming data on newer records (not part of the original sample), to detect any significant "drift" or skew in the performance of the model. If so, the unique tools described in #3, above, can be used to completely rebuild and update any desired model to capture the most recent trends in the marketplace. In the near future, it is *likely that all BusinessScores models will be completely be rebuilt each quarter*, as well as being refreshed on the D&B file each month. When implemented, this will be a capability unique in the marketplace, but only meaningful if one also has continuously updated data.

As discussed above, TNST does differ from others in how they model the likely bandwidth requirements of a firm, in that TNST views these attributes like telecommunications and marketing industry insiders, and not like economists or academics, in that:

- a) There are *no subjective assumptions* imbedded into the modeling process – it is *entirely driven by the underlying BusinessWave data* itself; and,
- b) This approach pays particular attention to *not only the raw capacity* of the client's bandwidth requirements, *but also the types and cost efficiencies associated with the possible solutions* that can be employed to address them.

The results are very accurate estimates that speak to the clients, in their own language, and in the terms they use to solve real-world problems. The following details below outline how this process is used by TNST to differentiate itself in the handling of the estimation of low and high bandwidth-related client requirements. (*As the communications industry is converging, and "bandwidth" can be used as either a measure of the communication capacity or data transmission rate, we are using this term as a generic description of any of the capacity needs of a firm whether they are voice, data, or any other applications.*)

Low-Bandwidth: Estimating "Switched Access Lines"

While the new methodology used in Telecommunications BusinessScores 4.0 allows spending and other estimators to be modeled directly, and not estimated by any factors applied "per line equivalent", it is still important to be able to accurately estimate the true switched line equivalents at the firm location, because many active client definitions of what constitutes viable business target market segments do so in terms of ranges of "lines" ("DS-0" channels, "voice grade equivalents", or "64 Kbps slices of bandwidth"), rather than in terms of "annual sales", industry "SIC codes", "number of employees", or more familiar firmographic descriptions.

Because of this, it is TNST's approach to not simply model "channels", but to examine the most likely amount and types of bandwidth requirements at the firm, and model the most likely services solutions used to address these needs. Once this is accomplished, it is a simple matter to derive the "access line equivalents" through the use of standard conversion factors.

TNST's approach to estimating the equivalent "switched" access lines (those running from the client location through the public network switching facilities at the ILEC Central Office) takes into account that these lines can fall into any – or all – of four distinct types:

1. **"Non-PBX" Lines** (POTS, Key or Centrex lines)
2. **"Regular PBX" Lines**, using Conventional trunks
3. **"T-1-based PBX" Lines**, using Digital trunks
4. **"T-3-based PBX" Lines**, using Digital trunks

The main reason for considering each of these types independently is that they look very different from a "line equivalent" perspective, due to the wide differences in the switching efficiencies of the various PBX systems.

In the categories above, there are also significant differences in the way these lines are perceived:

- **"Non-PBX"** systems resemble regular phone lines.
- **"Regular PBX"** systems resemble typical PBX trunks
- **"T-1" & "T-3-based PBX"** systems will appear to be "over-engineered" compared to the "Regular PBX" lines, and may have *significant underutilized capacity*.

The apparently "over engineered" digital systems are a reflection of the enormous cost economies of scale with digital switches. For example, a single "T-3" line has the same capacity as 24 "T-1" lines, at only three times the price; providing an eight-fold increase in efficiency!

In the above typology, the four different classes of PBX systems all have very different ratios of "line equivalents per employee", used to back into the line estimates, so to be able to assign the correct estimate of the "effective switched line equivalents" to a firm, one has to consider:

1. The *overall probability* of being in each of the 4 PBX "types".
2. The *estimated number of lines* for each type

Once TNST has derived, for a given firm, both of the above factors from the underlying BusinessWave survey data, then the effective "Estimated Switched Access Line Equivalents" is calculated by simply summing the 4 pairs of these component products, as shown in the example on the next page, below.

Note that, in the example below, if one knows a firms' probability of having each type of PBX at a given location, determining the number of access lines is a relatively simple exercise, which always *leads to a unique solution*. This is the easy exercise, but only if one has a source of detail to work with like the BusinessWave database.

However, if one lacks this type of detailed data, and attempts to impute detailed level estimates for a firm by dealing only with pre-aggregated data, it would be as difficult as starting with the total sum of access lines, and attempting to derive all the four individual numbers that comprise it... this *doesn't lead to a unique solution*, and is therefore *more prone to error* for estimates at the firm level!

$$["P_1" \text{ probability}] \text{ of "Non-PBX"} \times ["N_1" \text{ line eqivs.}] = ["L_1" \text{ effective line eqivs.}]$$

$$["P_2" \text{ probability}] \text{ of "Regular-PBX"} \times ["N_2" \text{ line eqivs.}] = ["L_2" \text{ effective line eqivs.}]$$

$$["P_3" \text{ probability}] \text{ of "T-1-based PBX"} \times ["N_3" \text{ line eqivs.}] = ["L_3" \text{ effective line eqivs.}]$$

$$["P_4" \text{ probability}] \text{ of "T-3-based PBX"} \times ["N_4" \text{ line eqivs.}] = ["L_4" \text{ effective line eqivs.}]$$

$$\text{Estimated Total Access Line Equivalents} = \sum_{n=1}^4 L_n \text{ line eqivs.}$$

High-Bandwidth: Estimating "Broadband Demand"

In addressing the higher-bandwidth needs of a firm, TNST takes a slightly different, but philosophically consistent, approach in its modeling: it first examines the most likely amount and types of bandwidth requirements at the firm, and then models the most likely data services solutions used to address these needs. If one still needs the equivalents of these solutions in terms of "channels" or raw Mbps, it is a simple matter that TNST can expedite for clients.

In developing the concept of "Broadband Demand", TNST deliberately avoided a pure bandwidth definition typically used by engineers, and went to a more marketing-oriented method of rank-ordering firms that was driven by the direct measure that clients were *really* trying to understand, but only by indirect means: *the relative spending on the data services needed to address the firm's high-bandwidth requirements*.

To do this, one has to consider three dimensions of the problem:

1. The *overall bandwidth* requirement.
2. The *type of data services solution* that can cost effectively address this.
3. The *national average cost* of this solution.

Note that, in the example above, if one also knows the *amount* of the particular type of the data services solutions, this gives you, in effect, the overall bandwidth requirement (#1) of the firm!